# ENGINEERING NEWS-RECORD

Is this the house of future? p. 28

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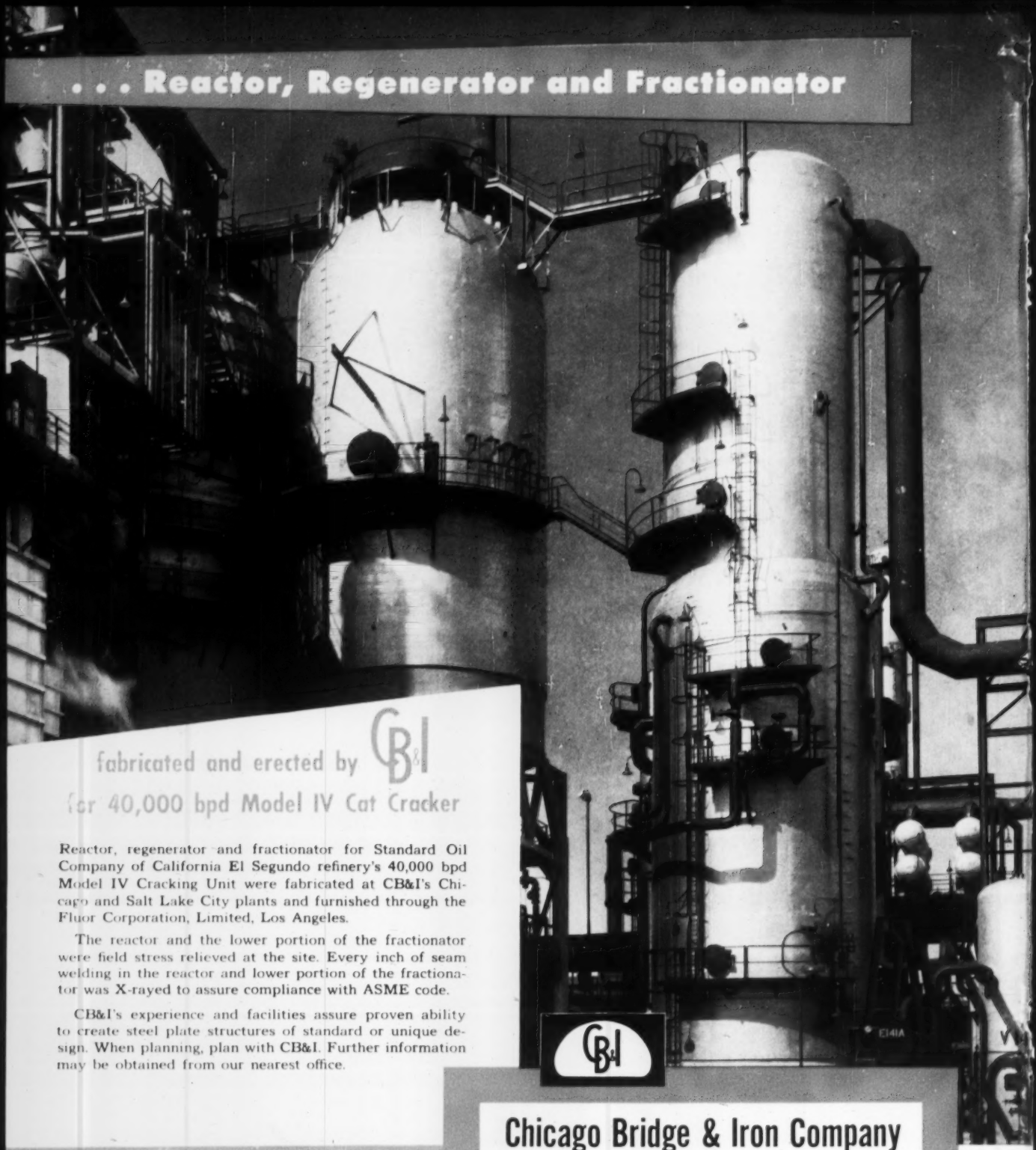


## fabricated and erected by CB&I for 40,000 bpd Model IV Cat Cracker

Reactor, regenerator and fractionator for Standard Oil Company of California El Segundo refinery's 40,000 bpd Model IV Cracking Unit were fabricated at CB&I's Chicago and Salt Lake City plants and furnished through the Fluor Corporation, Limited, Los Angeles.

The reactor and the lower portion of the fractionator were field stress relieved at the site. Every inch of seam welding in the reactor and lower portion of the fractionator was X-rayed to assure compliance with ASME code.

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***40,000 bpd Model IV Catalytic Cracking Unit at Standard Oil Company of California's El Segundo refinery. The reactor, regenerator and fractionator were fabricated and erected by CB&I.***

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# Progress in New Orleans

Old Man River is far below as Bethlehem bridgemen place truss steel for the Greater New Orleans Bridge. The high point of the truss, directly over a main pier at right, will be 362 ft above low water. The traveler shown on the job is equipped with a 115-ton-capacity stiffleg derrick with a 115-ft boom, and a 25-ton-capacity derrick with a 90-ft boom. Both derricks are mounted on a 100-ft tower.

The bridge's main span is of cantilever design. At 1,575 ft it will be the longest of its type in the United States, and third longest in the world. It allows 150 ft clearance.

Over-all length of the main bridge is 3,019 ft. The elevated approaches add another 7,700 ft or so. Our contracts, totalling 33,670 tons of fabricated structural steel, also include installing 900 tons of eye bars, 1,400 tons of steel grid flooring, 30 tons of grating and 6,000 lineal ft of handrail, plus paving, the drainage system, lighting and electrical work.

The bridge is a project of the Mississippi River Bridge Authority of the State of Louisiana. *Designer and engineer:* Modjeski & Masters, of Harrisburg, Pa.

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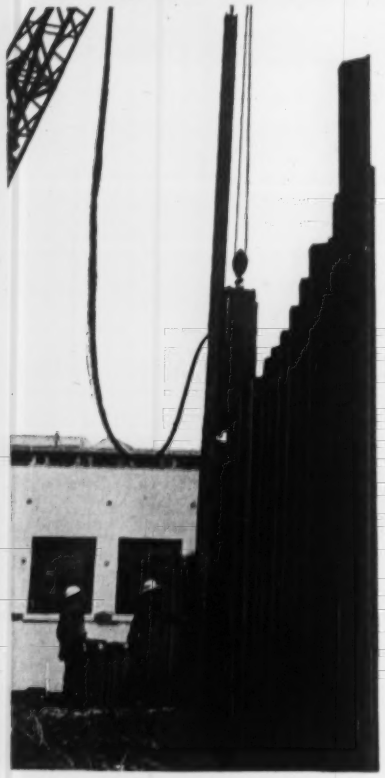
## At 3 P.M....

## CAVE-IN!



Cave-ins will happen, through no fault of the contractor. On this excavation job, there was erratic soil behavior, shifting loads, saturating rain . . . everything unpredictable.

When it happened, L. B. Foster Co. was called at 3 P.M. for rental steel-sheet piling *in a rush*. We cut MP-116 piling in our yard, and delivered it in Foster trucks to the job site 400 miles away before the crews started work next morning.

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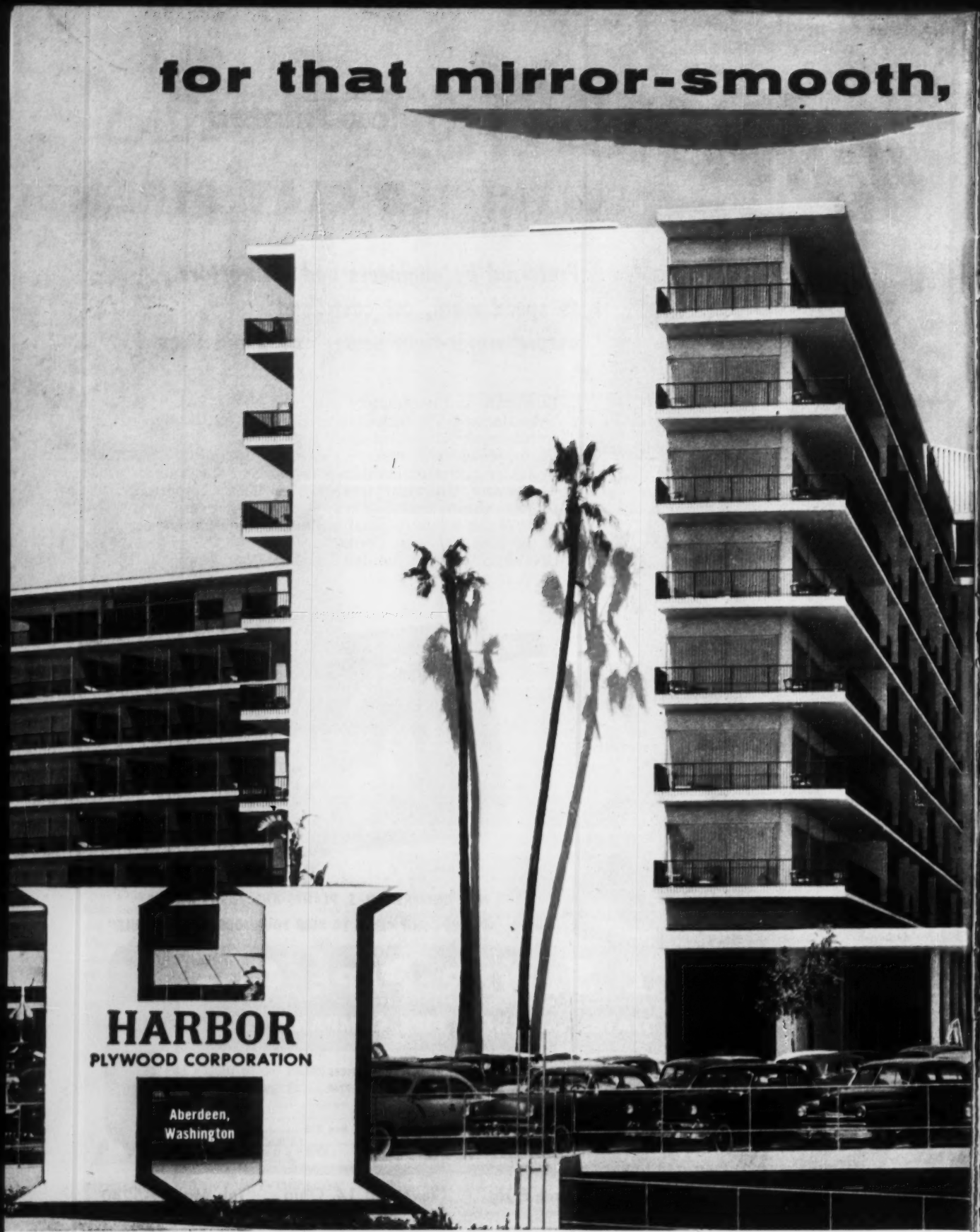


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Oklahoma City, Okla. — Installing 30" cast iron pipe for floodway siphon in municipal sanitary sewer system.

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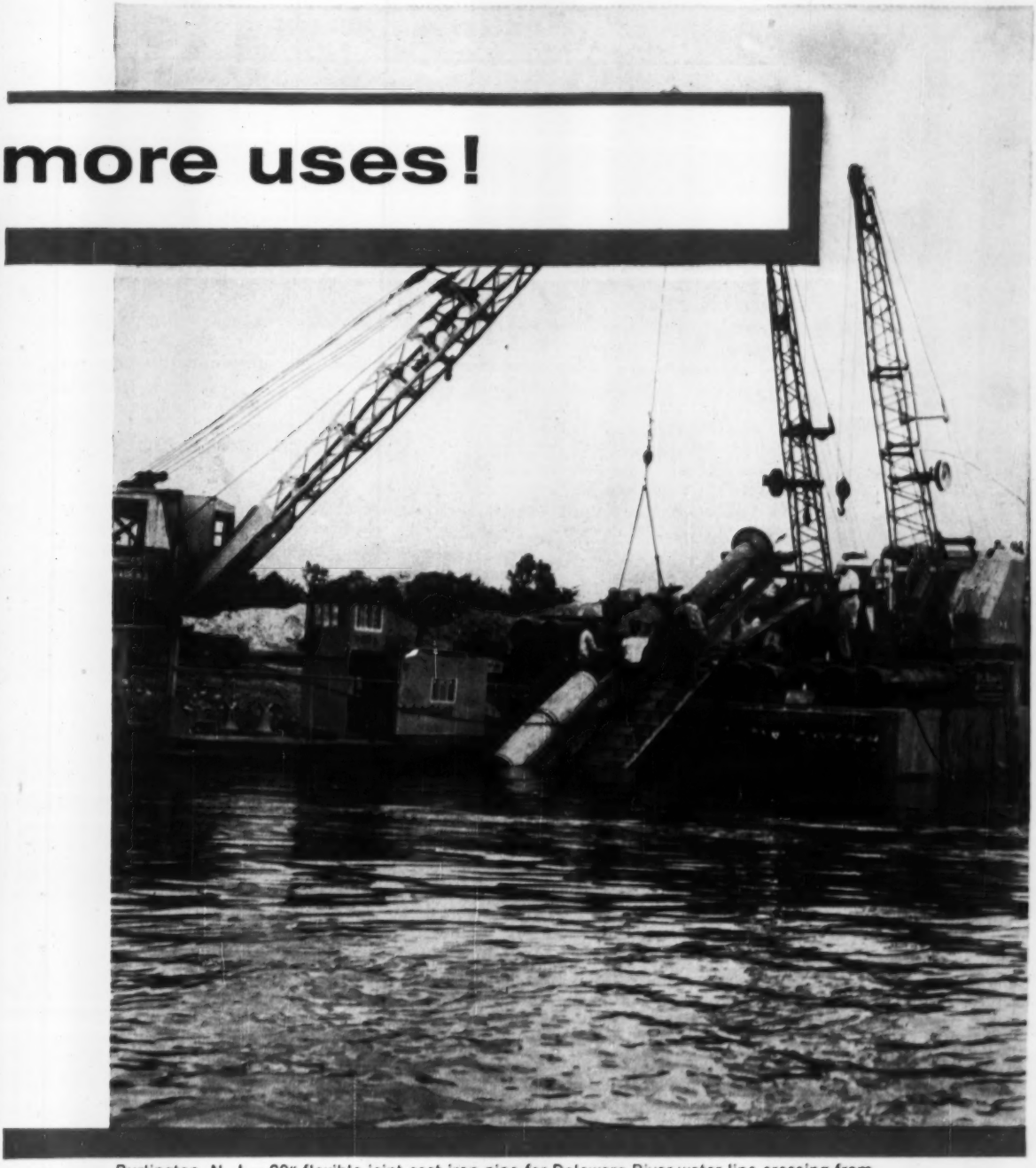

Burlington, N. J. — 20" flexible joint cast iron pipe for Delaware River water line crossing from Burlington Island to Water Plant.

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Thomas F. Wolfe, Managing Director, Suite 3440, Prudential Plaza, Chicago 1, Illinois.

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# Reader Comment

## Subcontractor Bond?

SIR—I call your attention to the summaries of court decisions prepared by I. Vernon Werbin (ENR May 16, p. 114) in connection with the Osceola Construction Company case. The first paragraph contains the statement: "As required by the Miller Act, the subcontractor furnished a surety bond to secure performance of the contract and payment for all labor and materials furnished the subcontractor."

I believe this statement contained an inaccuracy and should read the "*prime*" contractor (Osceola Construction Co.) *not* the "subcontractor" furnished a surety bond as required by the Miller Act. I know of no requirement of the Miller Act which provides that a subcontractor furnish a surety bond.

ROBERT A. BECK
*John G. Beck Agency*
*Pittsburgh, Pa.*

EDITOR'S NOTE—Below is Mr. Werbin's reply.

SIR—From the opinion in the case, there is no error in the article. The court, in its opinion, stated: "In March 1952 the Osceola Construction Company, a Florida corporation, was the successful bidder for the construction of a Federal housing project in Hogansville, Georgia, and as such prime contractor entered into a subcontract with Floyd Miller, trading as the Floyd Miller Plumbing Company for the plumbing and heating work on said project, at the agreed price of $66,500. **Thereupon plaintiff, on March 6, 1952, became surety for Floyd Miller and executed a performance bond in accordance with the terms and provisions of the Miller Act, Title 40, U.S.C.A. Section 270a, guaranteeing, as the law would require, the faithful performance of his subcontract with the Osceola Construction and for the payment of all labor and material claims."**

I believe the above extract from the court's decision in the case involved indicates very clearly that the subcontractor furnished a performance bond.

I. VERNON WERBIN
*New York, N. Y.*

## Value of "Or Equal" Clause

SIR—I have read with considerable interest your editorial in ENR May 9, p. 164, wherein you discuss the clause, "or equal", present in many architect's and engineer's product specifications.

It seems to me that the contractor in asking for approval of products other than those specified should be given credit for asking for such approvals for reasons other than lower prices. Many other factors enter into product acceptability—such factors as adaptability, long life, attractive appearance, ease of application or installation, health considerations, availability and responsibility and experience behind a substitute for which approval is asked.

Contractors and their material suppliers are, I believe, obligated to call attention to substitutes that many times can and do perform better and give greater benefits to the architect and his clients.

It is my belief that the "or equal" clause comes much closer to describing what is wanted in quality and performance than does a suggested phrasing that covers only price differentials, which presumably would result in no savings to the contractor anyway but would revert to the owner.

My more than 40 years background experience has resulted in some rather decided opinions in connection with specifications. I have found that the architect and engineer can hardly be blamed for not approving materials on which they have no information or a limited knowledge. Therefore, it behooves the salesman to keep him up to date on the newer developments and advantages of materials that he wants specified or approved, and I think that's where the "or equal" clause becomes a benefit for everyone concerned.

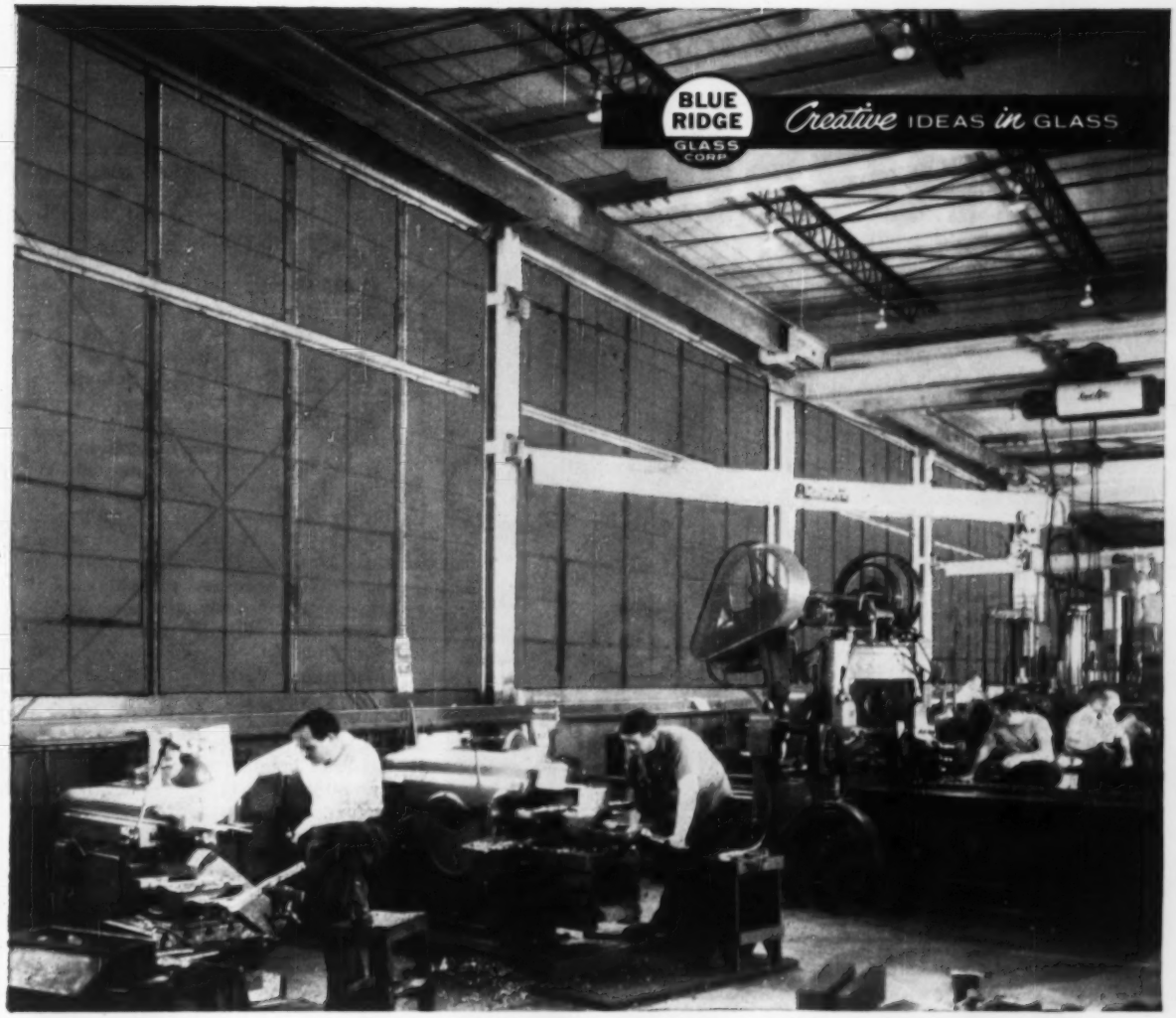
JAMES E. BLUE
*Vice President*
*Truscon Laboratories, Detroit, Mich.*

## Deck Structure Fault

SIR—We have had a surprising experience with a free-standing, deck-type structure that seems to point out why so many parking decks have failed in various parts of the U. S. In most cases that we know of, failure occurred before the building was completed.

In our case, the structure was a machinery platform supported on steel columns and with the deck level 9 ft

**Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.**




Lester Engineering Co., Cleveland, Ohio. Architect: Leonard L. Broida

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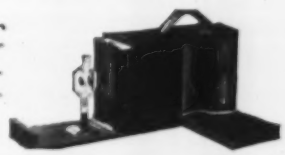

Your L·O·F Glass Distributor can show you, with a radiometer demonstration kit, how much AKLO Glass reduces sun glare and heat. He will also show you samples of AKLO in Hammered and Finetex® patterns, plain and frosted, with or without wire mesh. Call him (he's listed under "Glass" in the yellow pages) or write to Libbey-Owens-Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

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## . . . Reader Comment

above the floor. This structure had no contact with any part of the building in which it was housed. The deck had heavy steel beam framing and a reinforced concrete floor. It was braced directly under the bottom flange of the framing beams by four brackets on each column.

Foundations, built of concrete, were heavy, yet soil load was low. They were held in position by an 8 in. thick concrete floor.

The average load per column was 22,000 lb. The *l/r* value was 56.71 with 10 in., 31 lb wide-flange columns.

Column tables rate the safe load for such a column at 147,000 lb each. We allowed 100% for impact, bringing the design load up to 44,000 lb each. This should have proved a very strong, rigid structure from all the rules for steel design. Yet, when completed, it proved to be deplorably weak in the columns; so bad, in fact, that one could take hold of the column from the ground floor with one hand and weave it back and forth as much as 8 in. at deck level.

Our investigation showed the weakness and bending to be just above the ground-floor level. We remedied our trouble by welding flange plates to both flanges of each column to increase the section modulus sufficiently to overcome the bending.

Our brief analysis of this condition convinced us that any free-standing future of that nature, with no perimeter walls or framing, is subject at deck level to horizontal force, that is a component of the vertical load. In our case, we figured that the horizontal component was about one-third the vertical load. Braces at the under side of the deck have no effect on the weakness.

If our deductions are correct, columns for a deck-type, free-standing structure —including parking decks—must be analyzed for bending at the lower floor. The standard column formulas are inadequate for designing structures of this kind.

J. F. Mumper,
*Manager*
*The James F. Mumper Co.*
*Akron, Ohio*

## AISC Code is Arbitrary

Sir—E. Guillard stated that if the 20% stress increase, allowed by the AISC code, is employed instead of limit design, smaller beam sections result (ENR May 16, p. 12). This observation is generally correct. This arbitrary code is far too simple to be safe and consistent. Its introduction 10 years ago was

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CATERPILLAR ANNOUNCES

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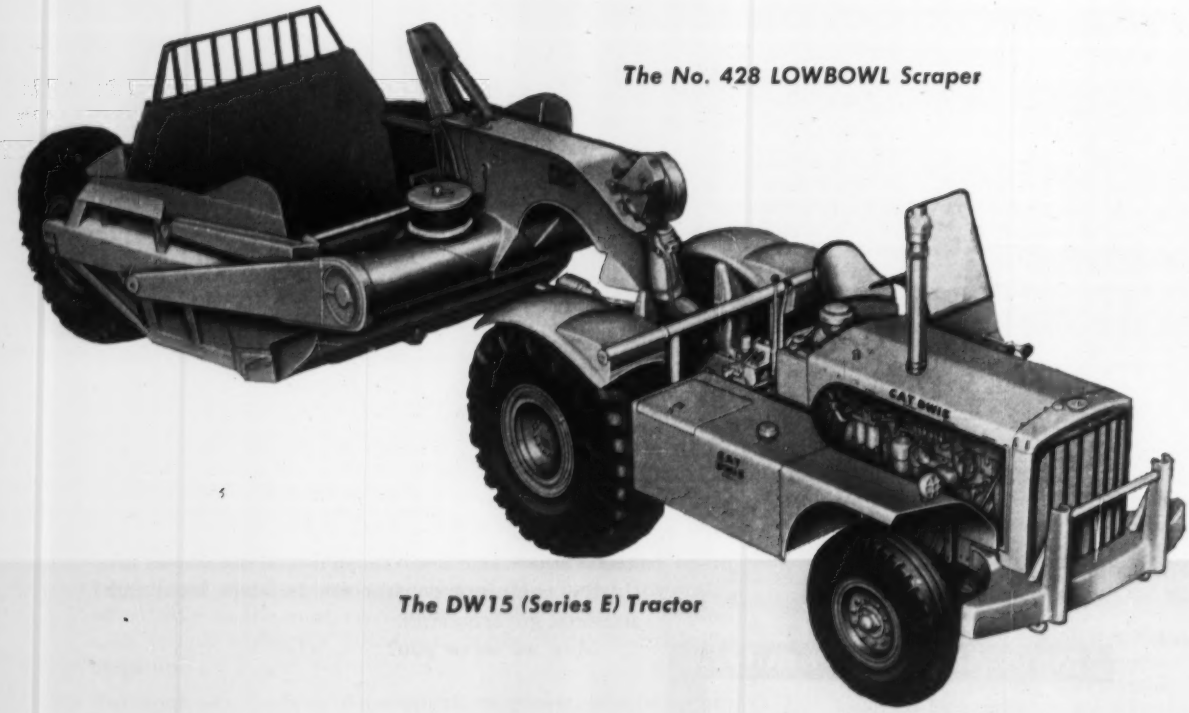

*The No. 428 LOWBOWL Scraper*

*The DW15 (Series E) Tractor*

**Here's a new Cat team loaded with features that add up to one thing—A HIGHER PRODUCTION RETURN ON YOUR INVESTMENT. See your Caterpillar Dealer for details on this great team's performance.**

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**A GREAT TEAM: The performance of the DW15 (Series E) Tractor and No. 428 Scraper can be summed up simply: bigger loads—faster.**

## FACTS ABOUT THE DW15 (SERIES E) TRACTOR

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**ENGINE:** A new Caterpillar D326 Engine, designed especially for the DW15 (Series E), develops 200 HP (maximum output capacity).

And Caterpillar research has produced a 23% torque rise in this new engine! This means that high tractor rimpull is maintained through a wide range of travel speeds in each gear, and the need for gear changing is decreased. In fourth gear, for example, over 3,000 pounds of rimpull are delivered at travel speeds from 9 MPH all the way to 18 MPH. A new engine, yes—but with these traditional Caterpillar advantages: uses inexpensive No. 2 furnace oil without fouling; needs no fuel system adjustments; requires no cleaning of fuel injection valves.

**TRAVEL SPEED:** The DW15 (Series E) offers ten speed selections, from 2.7 to 37.2 MPH. But, more important, it provides four-wheeled sure-footedness—*the ability to use the speed on the job.* Operators ride with more comfort, feel greater stability. They travel faster, and in safety.

**MANEUVERABILITY:** Four-wheeled stability means faster cycle time because the DW15 (Series E) can make short radius turns at higher speeds. It can turn without stopping inside a 35-foot diameter and in a smaller area through use of a turn-back-turn maneuver.

**VERSATILITY:** The DW15 (Series E) provides versatility that far surpasses similar sized two-wheeled machines. It can be unhitched from its scraper and used as an independent unit to tow compactors, water wagons or other units, and it can be teamed with the Athey PR15 Wagon for rock hauling work.

## FACTS ABOUT THE No. 428 LOWBOWL SCRAPER

**CAPACITY:** Struck—13 cu. yd.; heaped—18 cu. yd.

**ADVANCED DESIGN:** There is more to Caterpillar's exclusive LOWBOWL design than a low bowl profile. Width and length proportions are designed to give maximum loading efficiency. And every component—particularly the apron, ejector, cutting edge—is likewise designed to do its part in achieving capacity loads.

**LOADABILITY:** The final result of this careful engineering is this: bigger loads—faster. LOWBOWL design gives the new Caterpillar No. 428 Scraper a faster loading rate because incoming material meets less material resistance and less friction from the load already in the bowl. While other scrapers are still in the cut struggling for the last few yards of their load, the new Cat units are on their way to the fill—with big pay loads!

**NEW FEATURES:** Outstanding new features of the No. 428 include: increased ground clearance—for high-speed travel in rough going; increased apron lift—for faster ejection of any material; large area pushblock—for better pusher contact.

### NEW TIRES FOR THE DW15-No. 428

**Both the CAT* DW15 (Series E) Tractor and No. 428 Scraper feature 26.5-25 wide-section tubeless tires—the product of extensive co-operative research by Caterpillar Tractor Co. and leading tire manufacturers. Tubeless tires offer load-carrying capacity comparable to conventional tires at a *reduced inflation pressure.* This gives better flotation and traction while decreasing rolling resistance. The wider tire treads take a "grouser like" bite, making more efficient use of engine horsepower. And tubeless tires eliminate 80% of the down time caused by tire failure.**

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

**CATERPILLAR***

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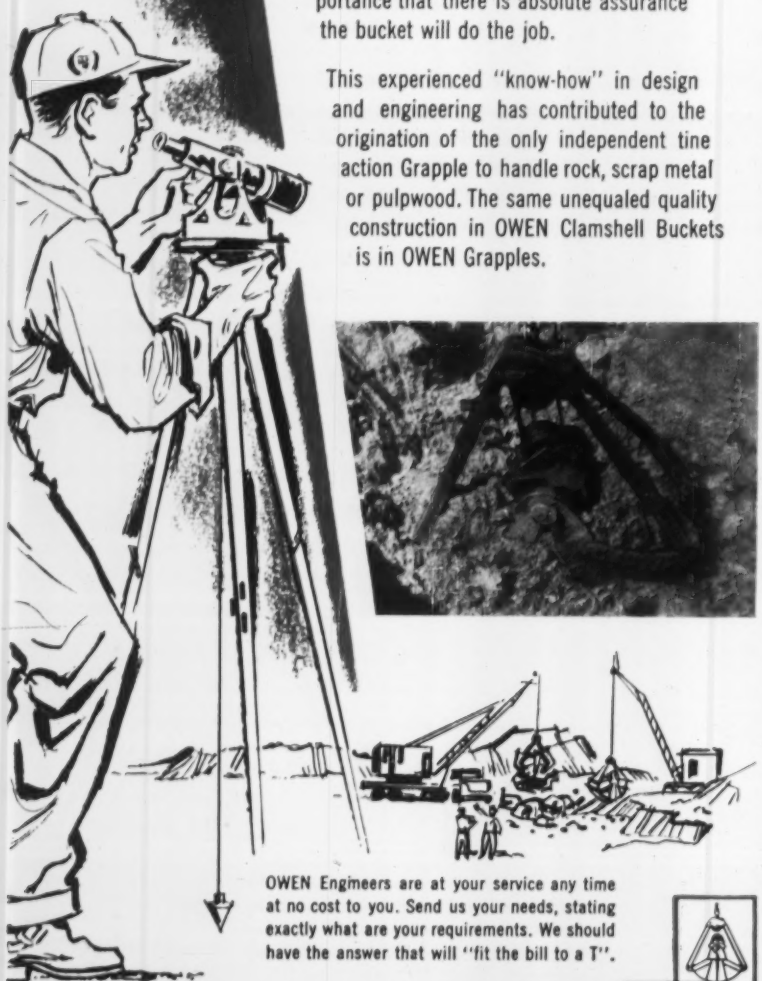
For digging . . . for handling material . . . for any clamshell work — OWEN Buckets perform giant size jobs day in and day out. OWEN'S designing and engineering experience, gained through 50 years of manufacturing Clamshell Buckets exclusively, has developed a product that is guaranteed to out-perform any other make. Remember — the bucket is the working end of the boom and it is of the utmost importance that there is absolute assurance the bucket will do the job.

This experienced "know-how" in design and engineering has contributed to the origination of the only independent tine action Grapple to handle rock, scrap metal or pulpwood. The same unequaled quality construction in OWEN Clamshell Buckets is in OWEN Grapples.



OWEN Engineers are at your service any time at no cost to you. Send us your needs, stating exactly what are your requirements. We should have the answer that will "fit the bill to a T".

**The OWEN BUCKET Co.**

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## . . . Reader Comment

neither justified nor necessary, because the theory of plastic equilibrium was common knowledge at that time for nearly two decades.

Like the code, this theory presupposes the knowledge of elastic-theory moments. It involves the solution of simple geometric problems—like finding a line under and above which the maximum ordinates of a given parabola are equal, or finding the trapezoid that makes three moment ordinates equal. The difference between elastic-theory moments and the equated moments representing the condition of plastic equilibrium are the equalizing moments. These express also the values of the support lowering by which a moment diagram identical to that of plastic equilibrium can be achieved.

The deviations between the requirements of this code and the theory of plastic equilibrium in the design of continuous beams of constant section will be illustrated by several practical examples: (1) Three equal spans, uniform dead and live load, the code moments are 2.88% and 4.57% smaller. (2) Spans 30-45-30 ft, concentrated loads spaced at 15 ft, the code moment is 3.84% smaller. (3) Four 30 ft spans, concentrated loads spaced at 10 ft, the code moment is 5.28% smaller. (4) Three spans, 1 : 0.5 : 1 length ratio, uniform dead and live load, code moments are 2.56% larger and 0.91% smaller. (5) Four spans, 1 : 0.5 : 0.5 : 1 length ratio, uniform dead and live load, code moments are 5.13% and 4.16% smaller. For beams with varying section the code moments may become more unsafe.

The AISC code is considered to be authoritative. How, therefore, can any limit-design procedure be employed when it results in a more expensive structure than required by this code?


LOUIS BALOG
*Consulting Engineer*
*Binghamton, N. Y.*


## CALENDAR

**Annual Meeting of American Society for Testing Materials,** Chalfonte-Haddon Hall, Atlantic City, N. J., June 16-21.

**Wire Reinforcement Institute, Inc.,** annual spring meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., June 24-25.

**Concrete Reinforcing Steel Institute,** annual meeting, The Greenbrier, White Sulphur Springs, W. Va., June 24-29.

**World Conference on Prestressed Concrete,** Fairmont Hotel, San Francisco, Calif., July 29-August 2.

**Hydraulics Div., American Society of Civil Engineers,** Kresge Auditorium, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 26-28.

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You've got to *try* Rust-Oleum *yourself* to get the feel of it . . . to see how *fast* it covers, how *easy* it works, how smoothly it flows on. You'll see the *big* savings in time, labor and money when you apply Rust-Oleum 769 Damp-Proof Red Primer over rusted metal—eliminating costly surface preparations. You'll see how the *specially-processed* fish oil vehicle *penetrates* rust to bare metal where it stops rust to assure long wear. You'll say you've never used a coating that went on so easily and covered so well. Try Rust-Oleum *soon*—in your plant or around your home. Write for illustrated literature with color charts.

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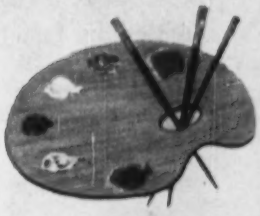
No costly surface preparations usually required—just scrape and wire-brush to remove rust scale and loose rust—then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust.



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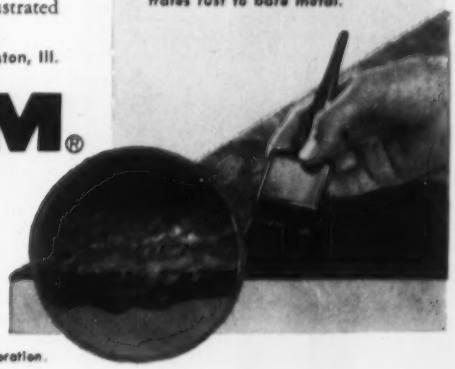

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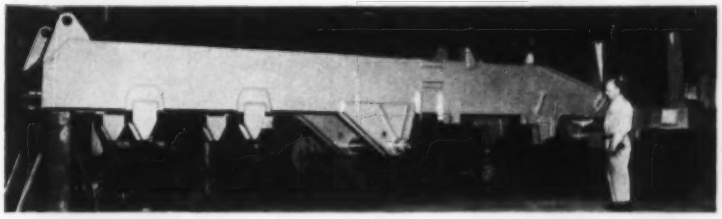
You can look to the Autocar AP-40 to provide a new way to profitable volume hauling. From face to breaker and back again, there's nothing to match its fast trip cycle. Under heavy, crunching loads and over a variety of grades, it provides extraordinary low-gear performance—and high-gear speeds between 25 and 33 mph. Its weight to horsepower ratio is 275:1—never before achieved in a heavy-duty truck.

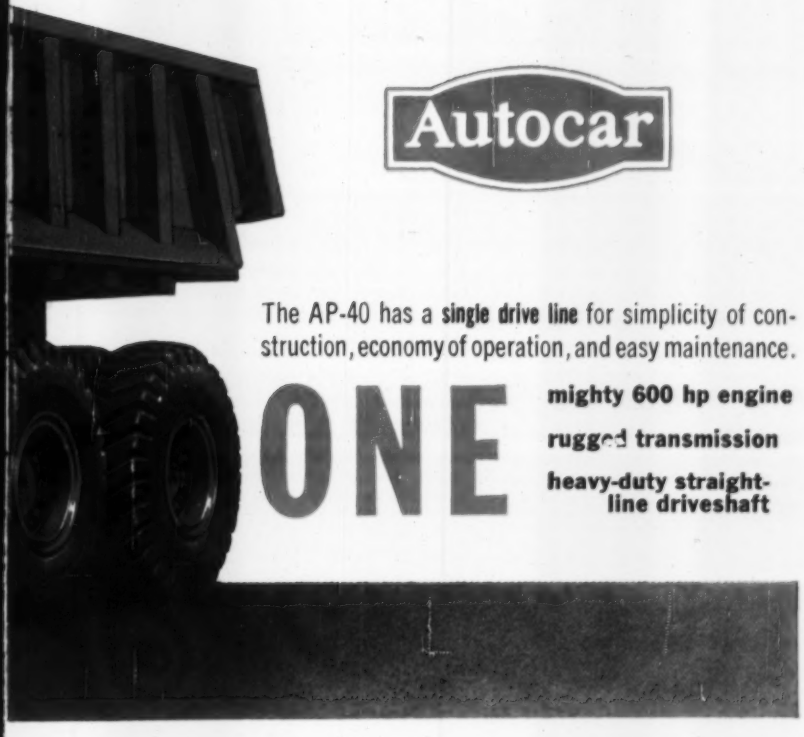
# AUTOCAR rated 40 tons



The strength of this powerful unit rests solidly on the tough torque-resistant box frame of 1-in. plate with corrugated internal reinforcement of ¾-in. plate. Seven cross members. Depth of frame under load area, 23½ in.; length, 27 ft. 11½ in., weight 16,800 lb.

## AUTOCAR TRUCKS

**Autocar Division, The White Motor Company**
**Exton, Pa.**



Autocar

The AP-40 has a **single drive line** for simplicity of construction, economy of operation, and easy maintenance.

**ONE**

**mighty 600 hp engine**

**rugged transmission**

**heavy-duty straight-line driveshaft**

## Here are a few of the massive features of the AP-40

### Engine

V-12 turbocharged Diesel developing 600 hp, which means a weight to horsepower ratio never before obtained in heavy-duty trucks.

### Transmission

A brand-new transmission, with 9 speeds forward and 2 reverse, specifically designed to handle the power of the 600-hp engine. This is the first vehicle built with this transmission.

### Clutch

17-inch 2-plate clutch, manually actuated with air assist for ease of clutch pedal operation.

Clutch facing: Ceramic-metallic.

### Axles

Tandem rear axles with planetary gears located at the outer end of the wheels for easy accessibility. Forward rear axle has a double reduction carrier. Rear rear axle has a single reduction carrier with a matching ratio. Interaxle differential is of the 4-pinion, high traction type capable of transferring increased torque with the greatest possible traction.

### Body

27-cu.-yd. heavy rock body with chute construction, exhaust heated. Full cab protector.

### Hoist

Double acting, outboard mounted, telescopic type. Supports integral with frame. 70° dumping angle.

White Autocar

The time-honored ring trick always keeps the audience guessing, and if you like guessing games, perhaps you would like to guess how many tons of steel joint rings went into the construction of the City of Tulsa's 275,000 foot 72″ and 66″ Lock Joint Concrete Pressure Pipe water supply line. You'll find the answer concealed in the picture above.

But there's no guessing where the fabrication of these joint rings is concerned. Every ring used in the making of Lock Joint's flexible, self-centering and completely watertight Rubber and Steel Joint is carefully cut, rolled and welded. Then, to assure absolute roundness and exact diameter, every ring is sized on an hydraulic press to such close tolerances that any spigot ring will fit perfectly within any bell ring of like nominal diameter. This is only one of the many quality control measures which go into every phase of the manufacture of LOCK JOINT CONCRETE PRESSURE PIPE, to assure to the customer the highest type pressure pipe obtainable.

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# ENGINEERING NEWS-RECORD

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## CONTENTS


NATIONAL AFFAIRS

Land Scandal Puts AFL-CIO on Tightrope ..... 23
Water Plan Brought Up Short ..... 24
AAHO Test Road Objectives Approved ..... 25
Congress Shaves Down the Budget ..... 26
States Move to Raise Road Money ..... 27
Plastic House Forecasts Things to Come ..... 28
Big Contractor Becomes Developer ..... 30
Two Arkansas Dams Get Under Way ..... 30

FEATURES

How Do Electronic Scales Stock Up? ..... 39
New Design Concept for Church Roofs ..... 43
Keeping a Hospital Out of Hot Water ..... 46
Problems on the New England Thruway ..... 52
Lab Built Almost Entirely of Plastics ..... 56
Building an All-Concrete Food Terminal ..... 67
Twin Record-Size Prestressed Tanks ..... 68

NEW PRODUCTS

Opaque Film Cures Concrete Road ..... 73
Tool Lines Up Pipe Quickly ..... 73
Soil Compactor Has High Capacity ..... 73
Aeroil Goes Into Heavy Duty Field ..... 73
Cement, Aggregates Batched at Same Time ..... 73
Truck Borer Digs Wide and Deep ..... 74
Rig Makes Splicing Slings Quick ..... 76
Portable Power Bender Handles 4-in Pipe ..... 78
Compactor Offers Varying Working Widths ..... 78
Publications ..... 80

EDUCATION

Earthmoving School Set for Texas A&M ..... 82

RESEARCH

Chemical May Cure Road Frost-Heaving ..... 89
Ultra-High Strength Steel Developed ..... 89
Job-Mixed Blasting Agent Tried Out ..... 89

INTERNATIONAL

Steel-Concrete Members Form Frame ..... 90
Spanish Dam Fits Narrow Gorge ..... 94

MEN AND JOBS

General Berrigan to Leave the Corps ..... 99

BUSINESS AND FINANCE

Machinery Makers Trim Their Forecasts ..... 143
First Kansas City Tollroad Contracts ..... 144
A Cost System That Pays Off Fast ..... 147
Florida Votes School Funds ..... 148
Statistics Squabble Takes New Turn ..... 148
Chicago to Issue Bonds for Public Works ..... 150

LABOR

Homebuilders Seek Wage Solution ..... 152
Boycott Charge Filed With NLRB ..... 152
Two Areas Promote Labor Peace ..... 153
Engineering Employees Forming Union ..... 153
High Court Decisions Favor Unions ..... 154
Union Urges Control of Welfare Funds ..... 154

Reader Comment .... 8
Calendar ..... 14
Washington Observer 21
Books ..... 96
Obituaries ..... 106
Unit Prices ..... 109
Materials Prices ..... 110
Construction Reports .. 113
Scoreboard ..... 141
Editorials ..... 168



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# THE CONSTRUCTION WEEK

**INCLINATION TO ACCOMMODATE**—Pontiac, Mich., may build an adjustable tilt into the floor of a proposed $4 million civic-center auditorium. Purpose will be to permit leveling the floor for sports and certain other activities, and pitching it when the building is used as an auditorium. Detroit architects Smith, Hinchman & Grylls have completed a preliminary study and scale model of the structure. The centennial auditorium committee of the Pontiac Area Chamber of Commerce, in charge of the project, expects construction to begin in the fall of 1959.

**WATER FAMINE TO FEAST**—Late last year the St. Louis area was faced with a low water threat on the Mississippi; now residents are recovering from flash flooding of numerous tributary streams caused by last weekend's record 9 in. of rain in 14 hours. At least 3,500 persons were forced to evacuate their homes, many in East St. Louis. The Mississippi River at St. Louis rose 5.6 ft overnight but was not in flood—nor was the Missouri River.

**COMPUTERS FOR STRUCTURAL DESIGN**—It has been learned that the Portland Cement Association plans a large and active role in working up electronic digital computer programs in the structural concrete field. A computer has been ordered and four engineers have been assigned to develop applications. These plans by the well financed PCA foreshadow similar action by the structural steel industry, if only as a matter of protection. Thus, the PCA effort could be instrumental in breaking the programming bottleneck in structures and consequently a great stimulus to widespread adoption of computers by structural engineers.

**NO POLITICS, BUT**—New York's Governor Harriman used a television interview to declare that he was still looking for a replacement for Bertram D. Tallamy as head of his state's billion-dollar Thruway system. Any comment that the appointment would be a political one, said the governor, is silly and unfounded. However, he added that the replacement probably will be a man from the upstate area, not from New York City. In addition, he doesn't want a banker but does want a man with broad executive and administrative experience.

**WORDS ON WINTER WORK**—Canada leads the world in per capita volume of winter construction, and with construction taking one out of every five dollars spent for end goods and services today, Canada can't afford to do other than make its "construction season" year round. These facts of life were stated for the Engineering Institute of Canada at its Banff (Alberta) meeting by C. R. Crocker of Canada's National Research Council in Ottawa.

## the best combination for

# EXTRA POWER .. EXTRA PRODUCTION

Here's how to make a good machine better! Specify Pettibone SPEEDALL Model 250 *powered with a P&H Diesel.*

A responsive engine with high torque and lots of reserve strength, the P&H Diesel supplies power to handle heaviest digging at a high rate of speed—to handle peak loads without stalling. Downtime for restarts, servicing and repairs is held to a minimum.

The P&H Diesel provides other profitable performance features:

- **Faster Starts**
- **Better Idling**
- **Lower Fuel Cost**
- **Compact Design for Easier Maintenance**
- **Smaller Parts Inventory**

Efficiency and simplicity of P&H Diesel design assure lowest operating and maintenance costs. The P&H Diesel operates economically on low cost No. 2 diesel fuel. It has 25% fewer parts. All wearing parts are interchangeable.

Specify the P&H Diesel for all your construction equipment. For additional information on P&H Diesel powered SPEEDALLS see your Pettibone dealer or write for Bulletin Z-26.

## HARNISCHFEGER

P&H DIESEL ENGINE DIVISION, Crystal Lake, Ill.

# WASHINGTON OBSERVER

- **Interstate mileage up for bargaining**
- **Congress will decide atom power projects**
- **Waterways plug plant construction**

● **The Bureau of Public Roads is holding back on 1,000 miles of interstate highway** which Congress has approved for addition to the interstate network. This is mileage that can be allocated out to the states, but the bureau is holding back until it sees what Congress is going to do about the new drive under way to add another 7,000 miles. Chances are the new mileage won't be approved this year (see page 26) but odds favor eventual passage. All told, BPR has obligated over $2 billion in federal-aid funds to the states during the first 11 months of the new 90-10 federal-aid program. This is two and one-half times as much as has ever been parceled out during any previous 12 month period.

**Some states have obligated all their 1957 money, and more.** Of these California has obligated 95% of its 1958 allocation; others with one-half or more of 1958 funds obligated are Maryland, Rhode Island, New Mexico, and Wyoming. States already dipping into 1958 funds include New York, Illinois, Missouri, Ohio, Pennsylvania, Michigan, Minnesota, Connecticut, Oregon, Texas, Mississippi, Vermont, Colorado, and the District of Columbia. On the other hand, lagging in committing their 1957 funds are Nebraska, Nevada, Maine, and West Virginia, with less than 25% obligated.

1959 apportionments by BPR won't come before August or September. States with their 1958 funds already committed can go ahead with plans based on 1959 allocations; and some of them are planning to do this.

---

● **Atomic power projects now require the same approval from Congress that are required of public works projects** of such agencies as the Corps of Engineers and the Bureau of Reclamation. Already, AEC has submitted to the joint atomic committee for authorization some half-dozen atomic power projects which—up to now—could have been given the go-ahead without getting prior approval from Congress.

The new procedure is a victory for Rep. Clarence Cannon, the Democrat who heads the House Appropriations Committee. He charged AEC with violating the law, and forced the writing of new language specifically spelling out the procedure now being followed. Congressman Cannon is the man who also succeeded in getting all public works appropriations—regardless of agency—put into a single appropriations bill—and then made himself chairman of the subcommittee that gives the money requests the first going over.

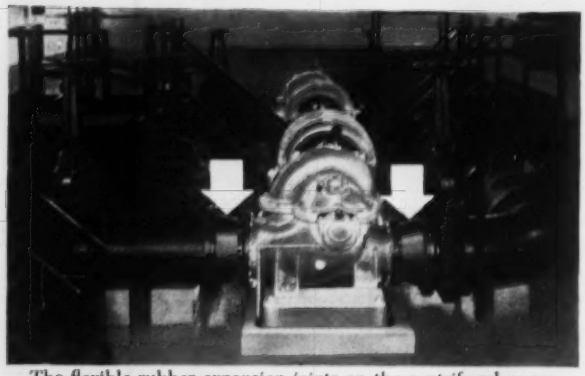
---

● **Inland waterways enthusiasts keep bragging about economic growth along their banks.** Their purpose is to combat the economy wave by assuring Congress that funds voted for rivers and harbors (see page 26) is money well spent.

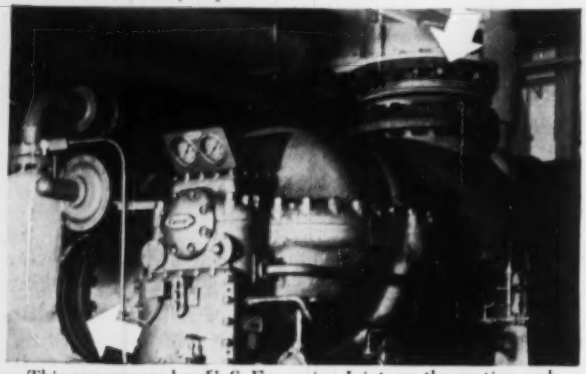
Latest figures they present indicate record construction of plants on waterway sites: On the Tennessee River, alone, last year, 160 new plants were built and 49 expanded at a cost of over $300 million. This year's first quarter shows 128 new plants to be built on sites acquired along river or canal banks. Over the last three years, 1,400 plants costing $2 million or more have been completed on waterways.

EXPANSION JOINTS

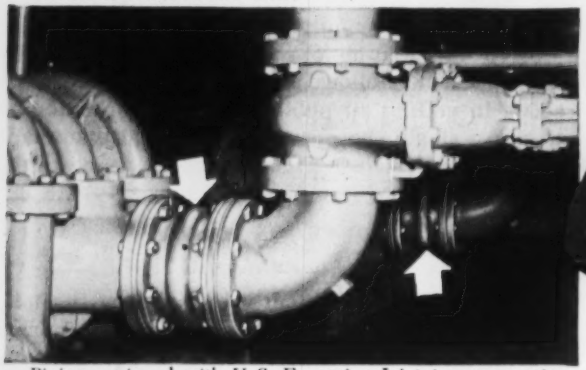
# Expanding the Designer's Scope



The flexible rubber expansion joints on the centrifugal pump installations (above) are made by U. S. Rubber. They prevent stresses caused by expansion and contraction.



This compressor has U. S. Expansion Joints on the suction and discharge lines. Like all U. S. Joints, these insulate against the transfer of vibration and noise.



Piping equipped with U. S. Expansion Joint to compensate for any misalignment caused by load stresses, wearing of parts or settling of building.

U. S. Rubber Expansion Joints are resilient and therefore do not, like metal, set permanently when compressed. Constant flexing merely keeps them alive... prevents brittleness.

- They absorb both axial and lateral deflection far more than metal joints. Greater insulation against vibration and pump noises. No electrolysis, corrosion or erosion.
- Handle pressures from 40 lbs. to 125 lbs.
- The outside diameter of the arch is smaller than on metal joints. (Face-to-face dimensions, even with multiple arches, are smaller.)
- Weight is much less. This, plus the fact that no gasket is needed between flanges (metal joints require gaskets) results in an easier installation lowering the cost.

"U. S." was the *first* to develop expansion joints. They are at work in every kind of industry, prolonging the life of equipment in pressure or vacuum pipe systems. Some are still in service, after 30 years of operation. Obtainable at any of the 28 "U. S." District Sales Offices, or write us at Rockefeller Center, New York 20, N. Y. In Canada, Dominion Rubber Co., Ltd.

For the complete technical information catalogue on the entire line of U. S. Rubber Expansion Joints, contact your nearest "U. S." District Sales Office or write us at Rockefeller Center, New York 20, New York.

Mechanical Goods Division

**United States Rubber**

**MAURICE A. HUTCHESON,** president of the carpenters union, took the Fifth Amendment when questioned on his role in Indiana right-of-way scandals, and thereby created a problem for . . .

**GEORGE MEANY,** head of the AFL-CIO, who must decide on the action to be taken in a case involving a union leader but not union funds.

# Land Scandal Puts AFL-CIO on Tightrope

The mounting troubles of the AFL-CIO hit a new peak the moment carpenters' union president Maurice A. Hutcheson took the Fifth Amendment in a Congressional witness chair. What happens as a result is, of course, of even more moment to the construction industry than the case of Dave Beck and his teamsters union. The carpenters are dominant in the building trades setup and are currently active in organizing workers for the highway program.

Up to now, the federation's anti-racketeering campaign has been running smoothly—at full steam in the case of Dave Beck and his teamsters union. But, when the top building trades leader took the Fifth Amendment before a Senate roads subcommittee, he tossed labor's top command a hot potato.

Mr. Hutcheson's case is now being juggled about, with no indication as to where it's going to end up. There are clear signs, though, that Mr. Hutcheson could cause considerably more trouble to organized labor than the almost-settled Beck affair.

While both Mr. Beck and Mr. Hutcheson took the Fifth Amendment in appearances before Congressional committees, the similarity ends there:

Mr. Beck was up for questioning about personal use of union funds.

Mr. Hutcheson is being asked about his part in a profit-making deal involving highway right-of-way land in the State of Indiana.

They differ, too, in their relationship to the AFL-CIO. Mr. Beck who is still in his first term as teamster president, has never been a full-fledged member of the club. Mr. Hutcheson, on the other hand, inherited the presidency of the carpenters from his father and with it an entry into the inner circles.

(Both, incidentally, are men of wealth. Mr. Hutcheson inherited sizable race track and real estate holdings from the elder Mr. Hutcheson; Mr. Beck's wealth is due mainly to personal investments on the way up the union ladder.)

Essentially, the Senate subcommittee attempted to implicate Mr. Hutcheson and two other carpenter officers in "a conspiracy to fleece the government" in the sale of highway right-of-way to the State of Indiana. According to evidence the committee purported to have, the union leaders, with two former state roads officers, split an $80,000 profit from sale of 10 pieces of land to the state.

Mr. Meany and other top officials at AFL-CIO are quietly arguing what to do about the Hutcheson matter. Only one decision has been made so far—that is to go slow.

This, in itself, is markedly different treatment from that accorded Mr. Beck. As AFL-CIO President George Meany said afterward, he called Mr. Beck before the AFL-CIO Executive Council immediately after he had heard of Mr. Beck's taking the Fifth Amendment. Later, the truck-union leader was fired from his seat on the Executive Council and was ousted from his office as a federation vice president.

There's no indication as of now that this is in the works for Mr. Hutcheson, who is also a council member. No special session of the council has been arranged for Mr. Hutcheson. His case will come up at the regularly scheduled meeting next August. Nobody knows now what will happen.

But until then, the debate over Mr.

## . . . Land scandal puts AFL-CIO on tightrope

Hutcheson's fate will continue on these main points—which show how top AFL-CIO officials find the Hutcheson case so much different from that of Beck.

• Mr. Hutcheson is not accused of using union funds. In the charge by the Senate subcommittee he is said to have shared in the 400% profit land sale to the State of Indiana, with the union president getting $15,500 for his share. The charges do claim collusion between former state roads officials and Mr. Hutcheson, along with two other carpenter officers—O. William Blair, second vice president and Frank M. Chapman, general treasurer. So far it appears that no union money was involved.

• Just what AFL-CIO ethical codes the building union officer has violated is also undetermined. While the Fifth Amendment code bars the invoker from holding union office, it's interpreted by most AFL-CIO officials as relating only to cases involving union business. "Taking the Fifth" on a personal matter may be all right, some say, after a subsequent investigation.

• Mr. Hutcheson is not now under indictment for the actions attributed to him by Senate investigators. Too, there has been no undercurrent of rumors involving the carpenters—as in the case of the teamsters—to prepare the AFL-CIO for immediate action.

• **Threatening explosion**—All these arguments are being used—successfully—by those who favor a cautious approach in deciding what to do about the Hutcheson matter. It is not only to assure the proper procedures; it's aimed too at preventing a potential blowup in the federation.

What AFL-CIO leaders fear is that the Hutcheson incident could magnify and possibly force a flare-up of the running feud between the federation's building and industrial unions. Their jurisdictional problems have been on the sidelines while all hands have been busy handling racketeering in the Beck case and elsewhere.

The Hutcheson case, however, raises worries that a split could develop over the carpenter issue. If the case is not clear-cut and the proposed action favored by all the key factions, it's considered possible that the carpenters might force a test case of strength—and get important support from other unions.

Therefore, AFL-CIO President Meany and his strategists are going to tread cautiously. Before final union action is taken, it's quite likely the AFL-CIO will wait for any legal decisions on Mr. Hutcheson's case if it comes to that, to support whatever position is taken. This is one they want black-and-white.

Unlike the Beck case, the federation's anti-racket squad in dealing with Mr. Hutcheson has a union president in tight control of his organization. The Indiana issue involves the controlling officers of the carpenters, whereas Mr. Beck found that his support from fellow teamster leaders evaporated quickly—and he was forced to abandon his intention to run for the office again.

Too, Mr. Hutcheson, as head of the carpenters, has the most influential voice in the AFL-CIO's Building Trades Department. When he speaks, it's almost law to other construction union presidents.

The carpenters' alliance with three other powerful construction unions also presents a formidable front to the AFL-CIO. With the operating engineers, teamsters and laborers—known as the "Big Four"—the carpenters are actively involved in an organizing drive in highway construction, a drive that has paid good dividends in rounding up new union members. It's particularly effective because of the no-strike pledge the four unions offer to contractors. No walkout over jurisdictional disputes is the promise.

These unions have formed a compact unit and, in the Hutcheson case, they might operate as a solid bloc. Certainly, there could be a unanimity of opinion since the teamsters have already undergone investigation and the operating engineers are currently being looked into by the AFL-CIO Ethical Practices Committee. A bolt from the federation by these four would be very serious.

• **The prospects**—While Mr. Meany is moving cautiously in the case of the carpenters, it would be a mistake to assume that he's wary of it. Soon after becoming head of the AFL in 1952, the blunt, dogged Mr. Meany faced a challenge from the carpenters of a kind that made his predecessor, William Green back down.

Mr. Meany's trump card in the Hutcheson matter is the strength of the AFL-CIO—the benefit the merger of 140 unions offers to an affiliate as contrasted to going-it-alone. Certainly, this pulling power is demonstrated in the case of the teamsters who are seeking to fulfill all the AFL-CIO's demands to remain in the merged organization.

The carpenters, as one of the key construction unions, have even more direct interest in remaining in the federation. The close jurisdictional lines with other construction unions requires a close working relationship that can only come from being in the same federation.

There will be pressures for definite action against Mr. Hutcheson, if the original charges are substantiated. Even without a distinct violation of the written codes, some AFL-CIO officials—notably United Auto Workers President Walter Reuther—would argue that a union officer must be above reproach to hold office. If it comes, such a debate would add to chances of a building trades-industrial union split.

Despite the threat to the merger, this is a case that can't be avoided. If the anti-racketeering issue had not been in the public mind for so long, and if Mr. Beck had not come along first, the Hutcheson case might well have gone through without a showdown. Possibly, it could have been overlooked.

But the anti-corruption program has gone too far. The net has snared the carpenters' officers, at least until the time that evidence shows otherwise.

# Water Plan Brought Up Short

### California legislators fail to finance program; water department lacks funds for projects and personnel

The California water development program was thrown all out of focus when the state legislature adjourned June 12. Those wanting action on the water program worked right up to the final minute of the session but the gavels dropped, ending the Senate and Assembly sessions, without accord.

Swept to defeat were these five big issues—

1. Adoption of a constitutional amendment which would satisfy the future water needs of present areas of plenty and at the same time guarantee areas of deficiency a permanent right to water they need.

2. Legislation to facilitate federal construction of the $130 million San Luis project to provide irrigation water to western San Joaquin Valley.

3. Authorization of the proposed California Water Plan as a guide for all future water resources development in the state. The plan includes 736 new reservoirs as well as conduits, control works and the like estimated in 1955 at $11.8 billion (ENR May 17, 1956, p. 27).

4. Establishment of an immediate $250 million water project construction fund, replenished by royalties from state tideland oil leases and annual

appropriations from the general fund, or, as an alternative, authorization of a bond issue for water development project financing.

5. An appropriation of $38 million to continue the work already begun on the relocation of the Western Pacific Railroad and state highway, which are in the way of the proposed Oroville Dam. This key unit of the state's Feather River Project is designed to transfer water from northern California to southern California. The relocation job was started with a $25 million appropriation approved by the legislature in January before it became entangled in one of the most bitter fights in California legislative history.

• **Water rights the key**—Gov. Goodwin J. Knight put his effort behind a strong program to get the state into stride on a water development program. But the whole program bogged down when an agreement could not be reached on a plan to settle the water rights question.

Once it was definite there would be no constitutional amendment on water rights, southern California legislators, who control the State Assembly, served notice they would block any effort to pass other water legislation.

• **Water department periled**—In the final hours of the session, the Assembly agreed to a proposal to appropriate $3.4 million to permit the State Department of Water Resources to keep intact the engineering staff it has recruited to work on the proposed state water program.

But the Senate, angered over Assembly action killing legislation to authorize state cooperation with the federal government in construction of the San Luis project, rejected the bill.

While the session was one frustration after another in connection with water, two promising bills were approved.

One, proposed by Assembly Speaker Luther H. Lincoln, called for the creation of a joint Senate-Assembly committee to study a constitutional amendment on water rights. If this committee of nine members from each house can reach accord, the governor will probably call a special session in the fall or early next year to try to gain approval of a water program.

The second bit of legislation to gain approval was a bill to authorize the North Bay Aqueduct as a state water project with an appropriation of $1.3 million to complete engineering studies for the canal, which would take water from the Sacramento-San Joaquin delta and transport it to the counties north of San Francisco Bay.

• **Keeping body and soul together**—Using this money and about $1.7 million in holdover funds, State Director of Water Resources Harvey O. Banks believes it may be possible to retain his engineering staff while the legislature continues its efforts to reach an agreement on a water program.

Banks emphasized he is anxious to keep together his Division of Design and Construction.

"It includes," he stated, "some engineers that are hard to come by. We recruited internationally known authorities on some engineering specialties and it would be a terrific loss if they leave."

• **Rights had to come first**—The water rights question that stymied the California program proved to be far more serious a stumbling block than most observers had envisioned. A great number of responsible authorities in all parts of the state wanted to keep the program going and settle the water rights question later. But a strong core of southern California interests prominent among which were the Los Angeles Department of Water and Power and the Metropolitan Water District of Southern California wanted it settled before going ahead. Their contention is that the southern part of the state contains more than 60% of the voters and taxpayers and that these people should not support a statewide program unless the southern area is guaranteed a definite and positive quantity of water. Northerners, on the other hand, want to be able to develop water projects in the future for such needs as may develop in their area. They do not want to awaken some day to find they have no rights to water originating in their area.

• **Scarcity the question**—The crux of the water matter centers on whether or not there is enough water for both parts of the state. All official reports indicate there is. But influential agencies in both parts of the state want constitutional guarantees that there is.

The water fight spotlights a growing rift between the two sections of California. The south has more people; the north has more area. Both are jealously guarding their perogatives in such matters as high fund allocations and water rights. Many observers feel the rift will get worse before the participants realize they are cutting off their noses to spite their faces.

# Test Road Objectives Approved

Objectives of the $20 million AASHO test road near Ottawa, Ill., have been officially approved by the project's National Advisory Committee, representing the Highway Research Board.

Prof. K. B. Woods, head of the school of civil engineering, Purdue University, and chairman of the National Advisory Committee, said the $20 million project is now under construction, although bids for paving the six test loops were rejected by the Illinois Division of Highways as being too high (ENR June 13, p. 23).

Both rigid and flexible pavements on "controlled cross section design" will be placed on bases and subbases of specified depths, and subjected to controlled traffic for two years.

Axle loadings on the first vehicles will range from 2,000 to 3,000 lb on a single axle and 24,000 to 48,000 lb on a tandem axle. A system of electronic instruments will record the effects on the pavements.

The five objectives of the experiment, as outlined by Prof. Woods, are:

1. To determine the significant relationships between the number of repetitions of specified axle loads of different magnitude and arrangement and the performance of different thicknesses of pavement. These pavements will be uniformly designed and constructed of asphaltic concrete, and portland cement concrete, both plain and reinforced. They will be supported on different thicknesses of bases and subbases.

2. To determine the significant effects of specified vehicle axle loads and gross vehicle loads when applied at known frequency on bridges of known design and characteristics. The bridges will include steel I-beam design, conventional reinforced concrete, and prestressed concrete design.

3. To make special studies dealing with such subjects as paved shoulders base types, pavement fatigue, tire size and pressure, and heavy military vehicles. The findings of these special studies will be correlated with the results of the basic research.

4. To provide a record of the type and extent of effort and materials reduced to keep each of the test sections or portions of the various sections in a satisfactory condition until discontinued for test purposes.

5. To develop instrumentation, test procedures, data, charts, graphs and formulas which will reflect the capabilities of the various test sections. The results will be helpful in future highway design, in the evaluation of the load carrying capabilities of existing highways, and in determining the most promising areas for further research.

Prof. Woods noted that the AASHO test road near Ottawa, Ill., is the only research under way which may result in major changes in highway design.

# Congress Shaves Down the Budget

With the bulk of the appropriation bills acted on and the end of Congress not much more than a month away, it is now possible to get a clear picture of how deep the economy drive has cut.

When the economy hysteria was touched off by Administration backing and filling on the budget early this year, it appeared that all programs involving money were in jeopardy. This was particularly true when wave after wave of mail deluged congressmen following Treasury Secretary Humphrey's "hair-curling" warning.

## Legislation Scoreboard

### Housing

Omnibus bill providing for lower minimum down payments and increased borrowing authority for Federal National Mortgage Association has passed both houses and is awaiting a meeting of conferees to iron out minor differences.

### Public Works

Omnibus rivers and harbors and flood control bill has again passed Senate with many items in it that induced Presidential veto last year. The House has completed hearings on the $1.5 billion bill and it will be ready for floor action by July 1.

### Military Construction

The Senate armed services subcommittee has ended hearings on the Defense Department's request for $1.5 billion in new authorizations and $181 million in addition to prior authorizations. House hearings still under way. Money may be trimmed both in committee and on floor.

### Bid Shopping

The House Judiciary Committee has reported bill banning the practice of general contractors shopping for lower bids among subcontractors on all federal contracts of $100,000 or over. Bill may be taken up on House floor this week. Senate has not acted.

### School Construction

Bill calling for $300 million a year for five years approved by House Education and Labor Committee, but Rules Committee threatening to bottle up measure. Senate awaiting House passage before acting.

### Lease-Purchase

Senate Public Works Committee has approved bill that extends for three years authority of government to bring up new lease-purchase projects to Congress for approval and applies a 7% leeway on costs of both approved and future projects to meet rising construction costs. Bill is before House Public Works Committee and slated to be approved.

### Hells Canyon

Senate Interior Committee has approved a high, federal dam for Hells Canyon and bill is due for Senate consideration this month. No House action yet.

### Fryingpan-Arkansas

This $142 million stream diversion project in Colorado is ready for Senate floor action, following Hells Canyon and no trouble in passage is anticipated. Real trouble will be House which has twice refused to take up a committee reported bill.

### Niagara Power Development

Public and private power interests reported near agreement on bill providing for public development of 2 million kw at Niagara Falls. House action will follow Senate.

### Highways

Senate Public Works Subcommittee has reported a bill by Sen. Richard Neuberger (S. 963) banning billboards within 500 ft of the interstate and defense highway system. An amendment added 7,000 miles to the present 41,000 mile interstate network. No action as yet by House.

But it now appears that established programs are not faring badly at the hands of Congress. Many are getting less money, to be sure, but the cuts are not deep, crippling ones. Rather, it is shaving for appearance sake, more than anything. And the talk already is going around that the first supplemental bill for fiscal 1958 will contain a lot of money that was shaved off construction programs in the regular money bills.

The real victims of the economy drive are the new programs. The southern conservatives and GOP leaders in the House banded together early in the session in a "no new starts" approach to legislative proposals. That took the form, for example, of providing $41.7 million of the $41.8 million asked by the Office of Education for continuing the program of assisting school construction. But at the same time, Congress is taking a very stubborn attitude toward the President's request for a new school construction program.

Under public works, the House Appropriations Committee was willing to give Bonnville Power Administration $1.8 million more than it got last year, but it is taking a dim view of money for any new Reclamation programs. This will make it difficult to get through the $142 million Fryingpan-Arkansas stream diversion bill, the $353 million Hells Canyon authorization, or even the $30 million San Angelo reclamation project in Texas.

But the St. Lawrence Seaway Corp. is expected to experience little difficulty in getting an additional $35 million to continue work on the Seaway project. The money may not be voted by the end of the fiscal year, but the legislation is moving along in committee and is almost sure to be voted by the end of the session. Actually, the $35 million, in addition to the original fund of $105 million for the Seaway Corporation, is not an outright grant, but is a loan from the Treasury and is to be paid back later out of Seaway revenues.

The school construction program, which has become almost a cornerstone of the Administration's legislative program this session, is a prime example of how the economy mood has compounded the problem of getting a new program authorized. Last year the program was killed in the House, primarily because it got involved in the segregation issue. This year the Administration sent the program back to the Hill and asked Republicans not to vote for the integration rider that had proved the bill's undoing. To help its chances, the civil rights bill was brought up first.

# —No Deep Cuts Result

The reasoning was that if members got a chance to vote directly on a civil rights measure, they wouldn't feel constrained to support one injected into the school bill.

But before the House Education and Labor Committee had got rolling on hearings, trouble had cropped up from a new area—economy. So the bill was whittled down, first in subcommittee and then in the full committee. Proponents are even willing to take another cut on the floor in order to get the legislation on the books. But last week they got what they consider the unkindest blow of all—from one of their strongest backers. President Eisenhower announced that he would like to see the program terminated before he leaves office in early 1961.

This confirms what many opponents of federal construction have always claimed—that once Congress has authorized a program it is next to impossible to get it stopped. Eisenhower, in effect said, if I don't stop this program during my Administration, it is likely to keep on going. Proponents feel that this gives opponents another reason to oppose passage. And it means that the measure won't get much support from the one place essential to have it in order to enact the legislation.

Even the almost untouchable omnibus rivers and harbors and flood control bill is smarting under the economy axe. The $600 million recommended by the House Appropriations Committee for construction work of the Army Engineers prompted Rep. Overton Brooks, president of the National Rivers and Harbors Congress, to express himself as "sadly unhappy" over cuts and omissions in 1958 flood control appropriations.

There is one encouraging item for construction in the appropriations action. The Senate put back enough money in the Commerce appropriation bill for Business and Defense Services Administration to insure publication of construction statistics. House action had eliminated funds for the statistics when it acted on the bill.

The current economy move isn't taken seriously by the old-timers. They know that economy drives must run their course and that 1958 being an election year, construction proposals are sure to fare better next year.

The accompanying tables on appropriations and authorizations give a picture of how construction legislation is faring in the 85th Congress.

## Where the Appropriations Are Going

| BILL | Appropriation 1957 | Budget 1958 | House Voted 1958 | Senate Voted 1958 |
|---|---|---|---|---|
| | | millions | | |
| **Public Works** | | | | |
| Civil Functions, Army Eng | $458 | $453 | $422* | |
| Reclamation, Int. Dept | 143 | 135 | 113* | |
| Bonneville Power Adm | 18 | 25 | 19.8* | |
| Southwestern Power Adm | | 1.4 | 1.4* | |
| **Commerce** | | | | |
| Civil Aeronautics Adm. | | | | |
| Grants-In-Aid for Airports | 30 | 35 | 30 | 25 |
| (Liquidation of Contract Authorization) | | | | |
| Washington Nat'l Airport | | .5 | .25 | .25 |
| Bureau of Public Roads | | | | |
| Forest Highways | 23 | 28 | 25 | 23 |
| (Liq. Contract Auth.) | | | | |
| Public lands highways | 1.9 | 2 | 1.5 | 1.5 |
| (Liq. contract auth.) | | | | |
| Inter-American Highway | | 12 | 12 | 12 |
| **Independent Offices** | | | | |
| General Services Adm | | 2.5 | 2.125 | 2.145 |
| Nat'l Advisory Committee for Aeronautics | 62.677 | 76.8 | 70 | 71 |
| Veterans Administration hospital and domiciliary facilities | 51.635 | 50 | 42.5 | 42.5 |
| **Health, Education and Welfare** | | | | |
| Office of Education | | | | |
| Assistance for school construction | 108.5 | 41.8 | 41.7 | 41.7 |
| Public Health Service | | | | |
| Grants for waste treatment construction | 50 | 50 | 50 | 45 |
| Grants for Hospital Construction | 125 | 121.2 | 121.2 | 121.2 |
| Construction of Indian Health Facilities | 8.762 | 5.8 | 3.096 | 3.096 |
| National Institutes of Health Research Construction | 30 | 30 | 30 | 30 |
| **State Department** | | | | |
| Extension and Remodeling of State Dept. Building | 44.920 | 7 | 2.5 | 2.5 |
| **Defense Department** | | | | |
| Military Construction (Will Be Included In First 1958 Supplemental Bill) | | | | |

* Appropriations Committee Action. Bill has just been reported, but has yet to go to the floor; all others have been acted on by House as shown.

## The Problem: Money

### State legislatures focus on raising highway funds

After a slow start, many state legislatures are beginning to move in efforts to raise money that will be needed for street, road, and highway construction.

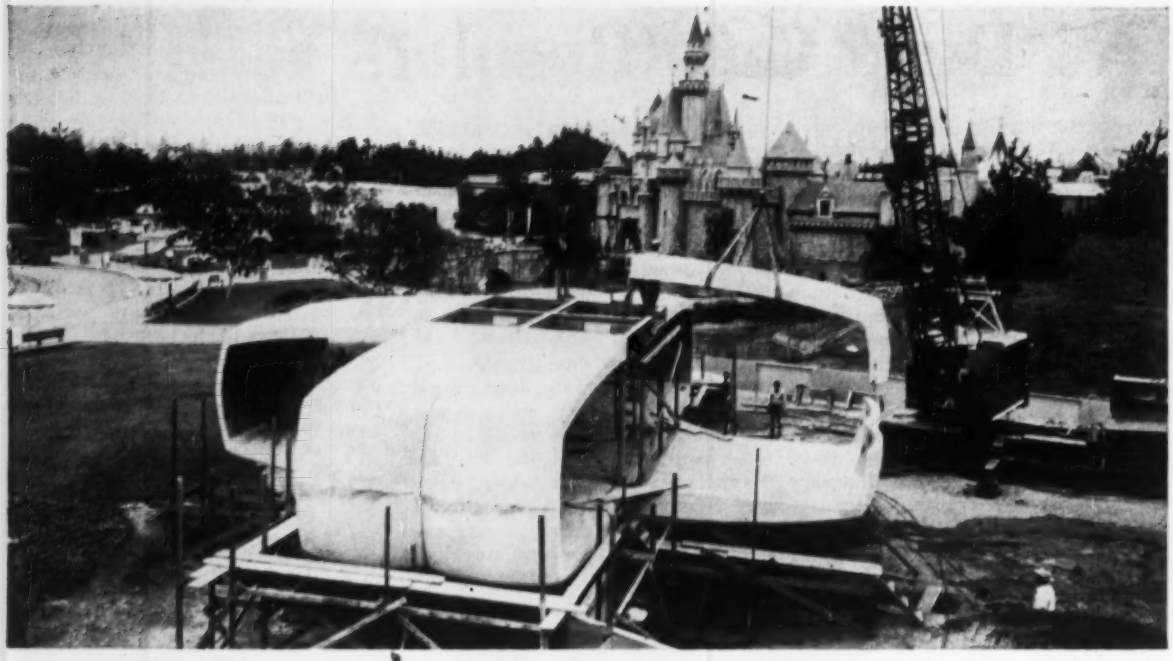
Arizona, Florida and Louisiana have aimed specific legislation at the problem of local road construction—but with varying results. A Florida try at raising state gasoline taxes by one cent a gallon with the extra revenue earmarked for city and county roads has been defeated. In Arizona and Louisiana bond issues exceeding $29 million have been authorized for the same purpose.

Other states are handling the non-interstate road moneys in different ways. Michigan lawmakers have passed a bill which will redistribute state highway revenues to give more money to counties and cities. Oklahoma now requires that county commissioners use 20% of the vehicle tax to match federal funds for farm-to-market roads.

For general highway work, bond issues are getting the serious attention of at least five states. Michigan is awaiting its governor's approval of a bill that will up its bonding capacity by $110 million, while Minnesota has enacted a measure setting up a $20 million bond finance revolving fund for the advance purchase of rights-of-way. The Maine Senate has before it a proposal for a referendum on a $24 million proposal. Now before the Delaware legislature is the largest single highway bond issue in the state's history.

To raise additional highway funds Texas has increased its motor vehicle registration fees by 10%, and Maine is considering the same course of action.

Florida is considering a bill to give the highway department $30 million from the state general fund, and the Maine legislature has before it a $60 million general highway allocation bill.



**Plastic house is erected rapidly with large sandwich panels . . .**

# House of the Future Built Before

A house made of plastics, built by Monsanto Chemical Co., was opened to the public in Disneyland, Calif., last week. In addition to its unusual exterior, it also embodies many other advanced design concepts.

Purpose of the project is to explore the possibilities of plastics in house construction. Twelve companies cooperated with Monsanto in supplying for the project materials and equipment not yet generally available. The unusual house, the sponsors believe, illustrates the environment in which a typical American family of four will live ten years from now.

It is on display in Disneyland, an amusement park opened in 1955 at Anaheim, Calif., 22 miles southwest of Los Angeles. In the park, story-book scenes are reproduced at five-eighths normal size. Included are a medieval castle, frontier fort, river jungle with steamboat and Main St. of the 1890s.

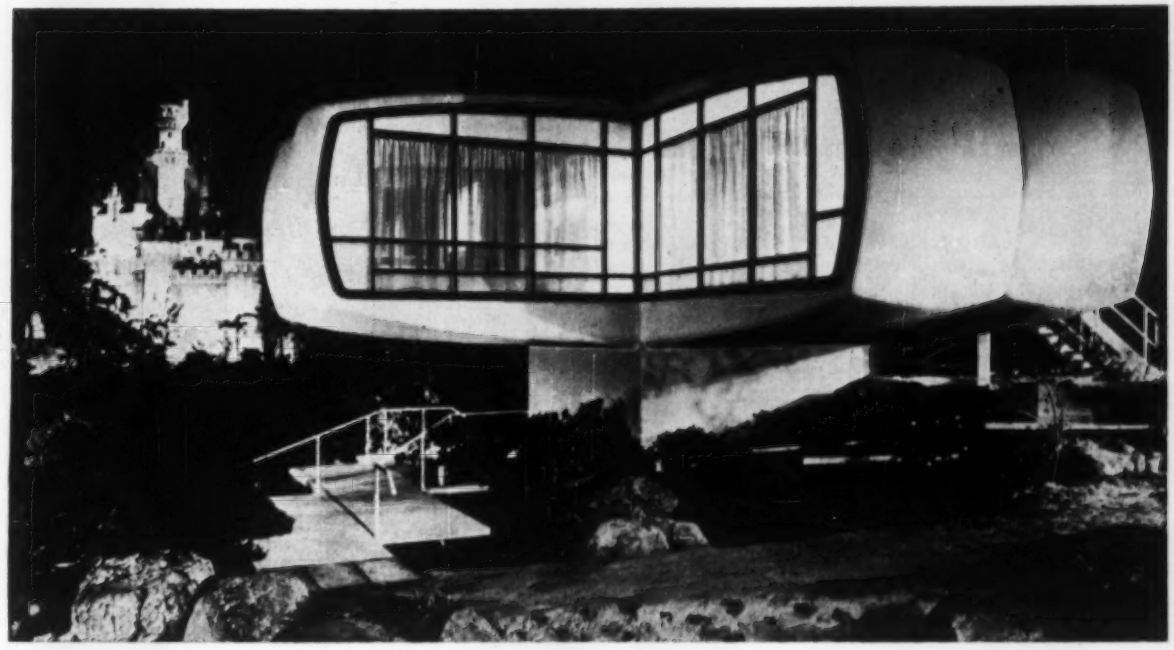
• **Plastic enclosure**—The House of the Future is cross-shaped in plan. It consists of a 16 ft square core and four 16 ft square cantilevered wings. The core contains baths, toilets, kitchen, laundry and other working areas. The four wings incorporate living room, dining area and bedrooms.

The enclosure is made of large panels to take advantage of the ability of fabricators to mold plastics in big, lightweight shapes. Shipping restrictions determined the maximum size of the units.

The core, supported on a reinforced concrete foundation, consists of a floor, four columns and a roof ceiling section.

**CANTILEVERED WINGS** of the plastic house are enclosed on the sides with windows set in a story-high wood frame that was installed as a single unit.

**CALKING** made of plastic seals the joints between panels.



**. . . and the house is fully equipped to forecast things to come.**

# Its Time

Each of the wings is composed of two floor and two roof sections, each 8 ft wide by 16 ft long.

Floor sections in the wings are hollow girders consisting of an outer curved flange and flat inner flange of sandwich construction. The outer shell extends from the foundation outward and up to meet the curved top shell of the roof section. Windows along the sides of the wings are double-glazed.

The flanges are faced with a polyester resin reinforced with a woven roving glass-fiber fabric. Exposed facings are 0.3 in. thick; inside ones, 0.1 and 0.15 in. thick. Between the plastic facings in the outer flange is foamed-urethane (or isocyanate) insulation. For the first 6 ft out from the house core, the insulation is 4 in. thick and has a density of 7 lb per cu ft, to stiffen the panel. Elsewhere, the insulation is 1½ in. thick and has a density of 2 to 3 lb per cu ft.

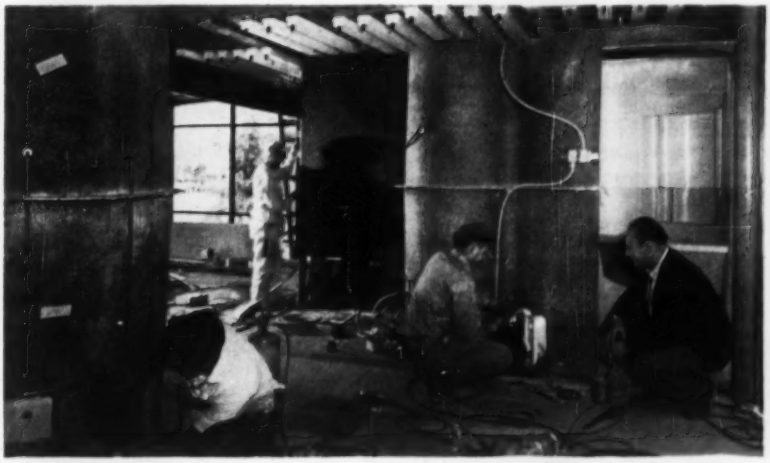
The flange forming the floor, seated on plastic angles extending to the bottom flange, has a 0.3 in. top facing and a plastic-impregnated paper-honeycomb core 4 in. thick. Components were glued together with epoxy resin.

The space between inner and outer flanges serves as a plenum for air conditioning. Circular holes in walls and ceiling provide an outlet for conditioned air and give access to bolts that join bents to each other and to the center core.

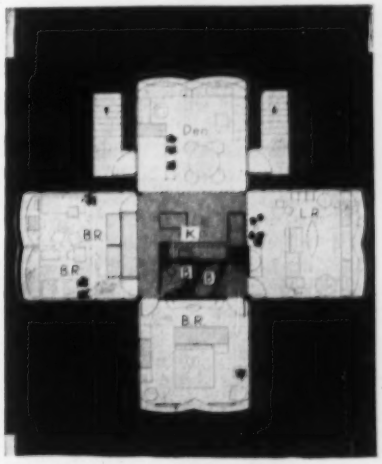
Structural research on these panels was carried out at Massachusetts Institute of Technology. A brief report of these tests was published in ENR Feb. 14, p. 25.

• **New developments**—Other novelties to be seen in this visionary house include:

"Atoms for Living Kitchen" incorporating provision for foods preserved by gamma irradiation. An effort was made to design this area so that it would not look like a kitchen when not in



**INTERIOR** of the plastic house is as unconventional as the exterior. It incorporates baths and watercloset molded integrally with the walls.




**PLAN** places the kitchen in the center, bedrooms and living areas in the wings.

use. A normal refrigerator, a freezer and a refrigerated compartment for irradiated foods are ceiling hung in a bank masked by plastic paneling. At the touch of a button, they descend. An electronic range is concealed beneath a counter top and rises for use.

Bathrooms have electronic controls. Shower and water closet are molded integrally with walls. Lavatory height can be adjusted electronically.

Unusual lighting effects—electroluminescent panels in bathrooms and polarized translighted ceilings in the kitchen.

Locks with automatic controls, plastic dual-level handles that are omnidirectional in operation and concealed door closers.

Foam-backed plastic floor covering.

The House of the Future was designed and built by Monsanto's Plastics Division, with Robert P. Whittier as project engineer and E. D. Schopbach as construction engineer. Structural analysis, prototype testing and field construction were carried out under the supervision of M. F. X. Gigliotti, manager, Structural Plastics Engineering. Hamilton and Gody, Cambridge, Mass., were the architects.

# Contractor Becomes Developer

## F. H. McGraw sets up a 5,000 acre industrial park and helps to create its own construction market

One of the country's largest engineering and construction firms, F. H. McGraw & Co. of Hartford, Conn., now is wearing a third hat—industrial developer.

Through a wholly owned subsidiary, McGraw Terminal, Inc., the concern is putting together a 5,000 acre industrial park on the Mississippi River at Burnside, La. The seven to eight year industrial development program is a by-product of two major construction jobs McGraw has under way in the area.

• **Facilities started**—At a location approximately 25 miles below Baton Rouge and 60 miles above New Orleans, the parent firm now is constructing a $7 million dock for barges and ocean-going ships and a $50 million alumina plant for Ormet Corp. The alumina plant is owned jointly by Olin Mathieson Chemical Corp. and Revere Copper and Brass, Inc.

Next month, the dock will be 60% completed and in operation on a limited basis. The Ormet facility, now 40% completed, will be operative in 1958. Occupying approximately 1,000 acres, the plant will be capable of producing 180,000 tons of primary aluminum annually.

The dock, a facility of the Greater Baton Rouge Port Commission and under lease to Olin Mathieson, is designed to unload up to 1,000 tons an hour depending on the material handled. Additional equipment can be added that would double this rate.

• **Construction agreements**—Donald W. Neville, president of the terminal company and vice president of F. H. McGraw, pointed out that creation of this industrial park in effect could create a continuing market for the firm.

Because of this Mr. Neville added, "we don't anticipate being left out of the construction of new plants at the site."

"There may be an exception," Mr. Neville said. ". . . But only a facility that would be of great benefit to the entire area would classify as the exception."

• **Lease or sale**—Present plans call for the outright sale of land to a company choosing the site as a plant location. But Mr. Neville did not restrict development solely to outright purchase by other firms.

"We have considered the possibility that some firms may want a long term lease, and we are open to such an arrangement," he explained.

The developing firm has placed no limitations on the type of industry it will accept because "the site more or less limits itself." Mr. Neville said the land is planned for location of bulk materials users along the one mile of river frontage.

Industries making use of lighter materials will be placed further back on the property that extends as much as three miles from the river. These industries would have access now to rail and highway connections and possibly later to the waterfront, through a conveyor system that is still in the planning stage.

• **Physical aspects**—The wedge-shaped 5,000 acre tract is plotted in tracts of approximately 400 to 600 acres each. "Because tracts of that size would be satisfactory and adequate for large industry," Mr. Neville said, "the developing firm tentatively has placed the maximum limitation for any one firm at 1,000 acres."

No minimum size has been established. But Mr. Neville emphasized that "this isn't a 10-acre proposition." He added, however, that the land as it is now plotted easily lends itself to subdividing.

The terminal company will assist a potential client in obtaining financing but will not provide the money itself.

# Arkansas Dams

## First earth is turned for 2 multi-purpose projects

It was "groundbreaking week" in Arkansas as two Corps of Engineer multipurpose dams went under the plated spade a day apart last week.

In the northwestern part of the state, the usual ceremonial steps were taken for $92 million Dardanelle Dam on the Arkansas River at Dardanelle—a day after similar rites had been held for $54 million Greers Ferry Dam, 70 miles to the east on the Little Red River near Heber Springs.

The Dardanelle job—the first Arkansas project in the Corps' program of navigational development of the Arkansas River—will include a navigation lock. Both Dardanelle and Greers Ferry—latter is the fifth of the approved projects in the White River Basin to be constructed by the Engineers—will feature flood control and hydroelectric power.

• **Dardanelle**—The 2,569 ft long concrete gravity structure that will stand 70 ft above riverbed will form a reservoir of 495,000 acre-ft. Spillway, running the length of the dam, will be a gate controlled, concrete ogee weir with stilling basin. Concrete used will total 250,000 cu yd.

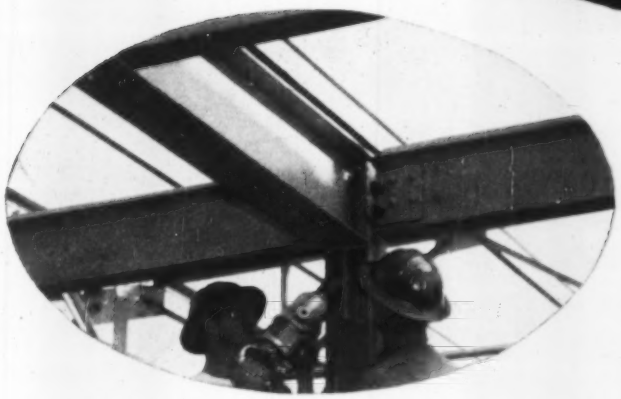
A navigation lock at the right-hand end of the dam, looking downstream, will be single chamber, single lift type fitted with miter gates. It is to measure 110 ft wide by 600 ft long and will provide a normal lift of 52 ft.

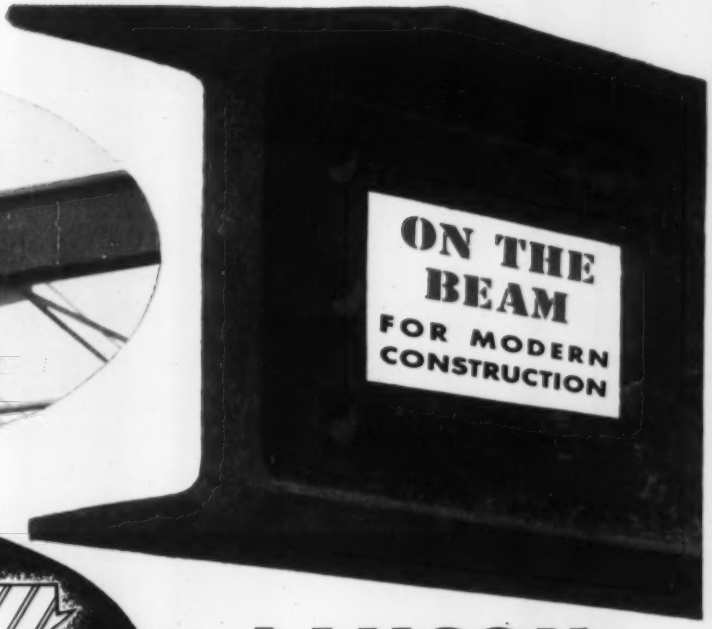
The powerhouse at the left end of the dam will hold four generating units of 30,000 kw each, operating under a nominal head of 52 ft. The 120,000 kw presently planned are also the project's ultimate capacity.

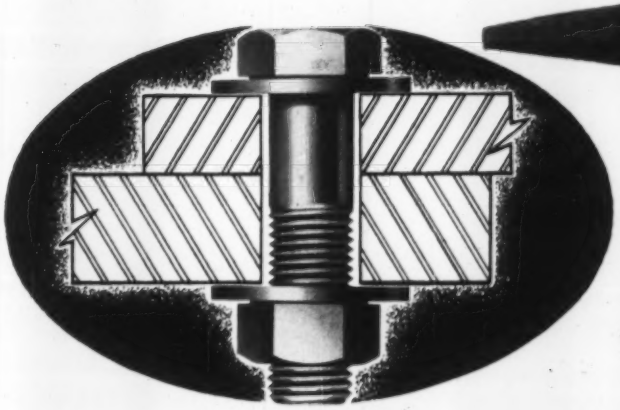
Dardanelle is scheduled for completion in 1967.

• **Greers Ferry**—The Little Red River on which Greers Ferry Dam will be built is a tributary of the White River. When completed in 1963, a 243 ft high, 1,627 ft long all-concrete structure will create a reservoir with 2.8 million acre-ft of storage space. Flood control will utilize 934,000 acre-ft of this and the remainder will be for generating an ultimate capacity of 96,000 kw.

Total concrete for the project is estimated at 900,000 cu yd, with 787,000 cu yd going into the dam.





Remember this head for dependable performance

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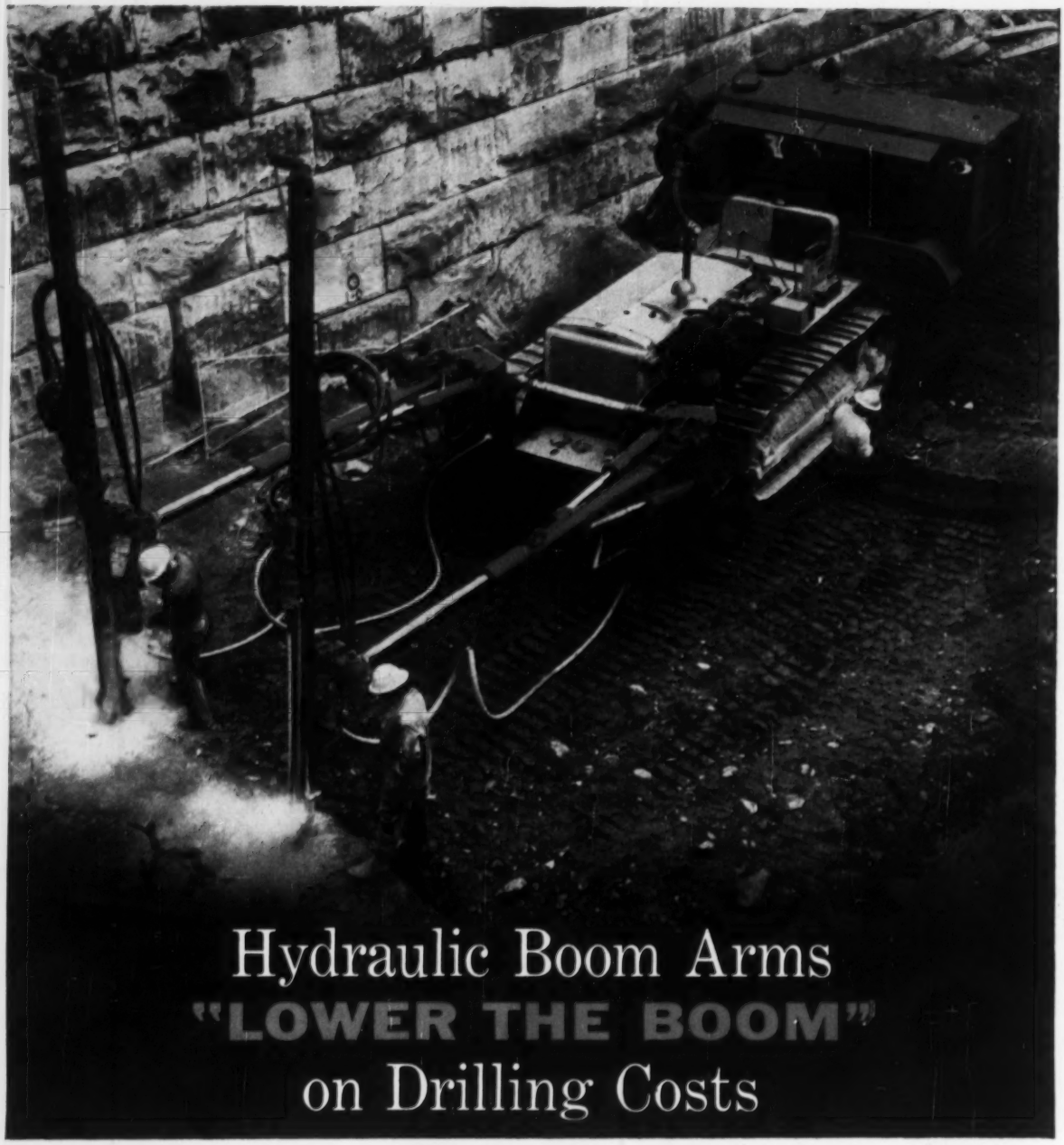
The importance of knowing the brand and source of High-Strength Structural Bolts cannot be over-emphasized. Assurance of quality, dependability and top performance is a *must* with bolts used in structural steel construction.

Lamson High-Strength Bolts are made from specially selected steel to meet the rigid A. S. T. M. specifications and fulfill the requirements of all building inspection codes.

The "L A-325" on the head is a symbol of reliability and your guide to the finest High-Strength Bolts money can buy. Look for it . . . and be sure of getting Lamson & Sessions proven quality backed by 90 years of fastener experience.



# Hydraulic Boom Arms "LOWER THE BOOM" on Drilling Costs

H-Booms have extra-capacity, double-acting hydraulic cylinders that retract and extend, swing or elevate in a hurry—yet pressures are moderately rated. There's no creeping or drifting! Boom can be extended 6 feet . . . that's an extra foot of length to afford better spacing of holes and greater area coverage without moving the rig.

Heavy-duty, Chicago Pneumatic H-Booms can be easily mounted on mine car, track or rubber-tired jumbos. It's a highly productive drilling unit when used on your old tractor. Write for more detailed information. *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, New York.*

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## $100 Million Port Work Advised for Baltimore

In a special report prepared for the Maryland Port Authority, J. E. Greiner Co. has called for expenditure of about $100 million to build 36 additional general-cargo piers on nine sites in the port of Baltimore.

The firm was engaged to advise the state on port rehabilitation.

The largest project would be on property owned by Arundel Corp., and would provide eight berths at a cost of $26 million.

Other suggested sites and their estimated construction costs are:

- Point Breeze area—could provide four berths at $12.2 million or eight berths at a cost of $18.3 million.
- Lower Canton area—six berths for $14.6 million.
- Lazaretto area—one berth for $2.2 million.
- Upper Canton area—four berths at a cost of $8.7 million.

An additional $30.5 million would be needed to build facilities for 11 berths in the Locust Point area.

Financing of any of these general-cargo facilities would be a joint venture of the Maryland Port Authority and the present owner of the property. Lease arrangements would be made with steamship lines if any of the improvements become realities.

Estimates do not include right-of-way costs and the costs of railroad trackage and warehousing facilities.

## Norfolk-Portsmouth Tube Is Nearing Construction

A second tunnel between Norfolk and Portsmouth, Va. (ENR July 19, 1956, p. 24) moved a step closer to reality recently when James A. Anderson, Chairman of the Elizabeth River Tunnel Commission requested the Corps of Engineers to issue a construction permit for the project.

Col. O. J. Pickard, Norfolk District Engineer, has given public notice that any objections to the project from a standpoint of navigation must be made by June 30.

The proposed tube, which will be about 2½ miles downstream from the first tunnel, will be 4,206 ft long from portal to portal and will have 600 ft open approaches at each end. The existing facility is only 3,350 ft from portal to portal but has approaches in excess of 900 ft long and includes a bridge over the west branch of the Elizabeth River. While long-range plans presuppose a bridge in conjunction with the new tube, no consideration is being given to it at this time.

The top of the second tunnel will be 58 ft below MLW with sufficient distance between its break points for a 1,184 ft wide channel. The present channel is only 750 ft wide and 40 ft deep, although plans for increasing its depth to 45 or even 50 ft are under discussion.

One legal obstacle yet to be hurdled is a determination of the right of the tunnel commission to condemn railroad-owned land. A dispute with the Southern Railway over Portsmouth land needed for approaches is currently awaiting adjudication by the Portsmouth Court of Hustings.

## Oklahoma Passes Gas Tax To Pay for Flood Damage

Faced with an expense of more than $5 million for repair work on flood damaged state highways and bridges, the Oklahoma legislature has passed a bill levying a temporary one cent a gallon increase in the gasoline tax.

Already approved by Governor Gary, the tax will be effective from June 1 until December 31, and is expected to raise more than $4.4 million in that period. If the tax revenues exceed expectations, or if the estimated highway repair costs are less than estimated, the governor has the power to rescind the measure before its legal expiration date.

## Detroit Expressway Strip Officially Open to Traffic

A new $12.5 million, 1.4 mile long section of Edsel Ford Expressway—from Russell to Mt. Eliot—is now officially open.

It includes the only part of the Detroit expressway system that is elevated, rising for nearly half a mile to span the Dequindre Railroad yard.

The new section is the most expensive strip of the expressway, and the bridge spanning the railroad yard is the largest ever constructed on Michigan's state trunkline system.

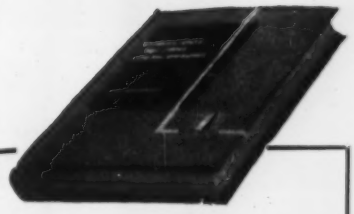
The rest of the road to the city limits will not be opened until sometime in 1959.

## Tunneler's Exploit to Be Seen Again on Television

Apparently public reaction to the first Telephone Time television production of B. A. Peters' Grand Valley tunneling record was so favorable that a repeat showing has been scheduled for July 23 over the ABC network at 9:30 pm EDT and PDT (8:30 pm all other time zones).

The show, first seen on December 30, 1956, recounts the dramatic gamble that Grafe-Callahan Construction Company's project manager took in pushing his equipment to the utmost to drive a new irrigation tunnel connecting the Colorado River to Grand Valley.

The old tunnel had collapsed on

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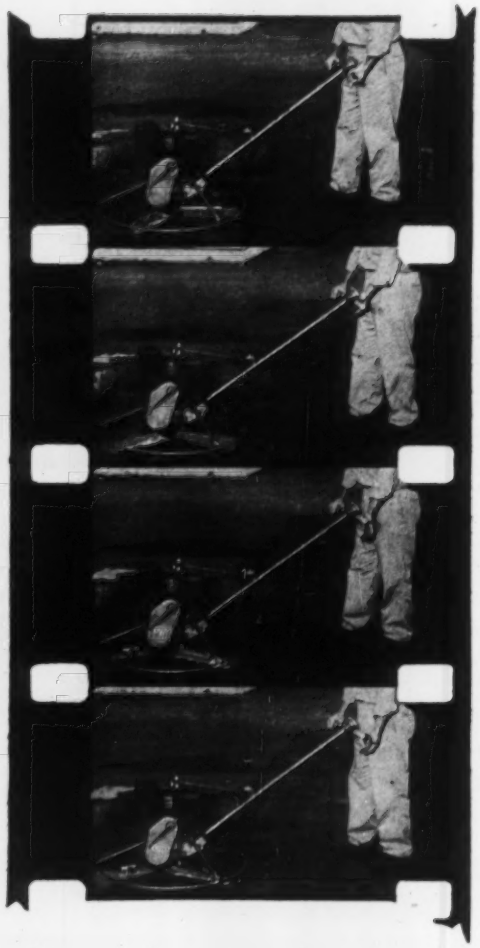
**A** TROWEL BLADES IN MOTION

**B** CLUTCH CONTROL ON HANDLE IS RELEASED (NOTICE OPERATOR'S LEFT HAND)

**C** WITHIN ¼ TURN, OR 1/6 OF A SECOND, THE BLADES ARE COMPLETELY STOPPED



# MOVIE FILM PROVES STOW ROTO-TROWEL STOPS *INSTANTLY!*

Close up of manually actuated clutch control which stops blade rotation within 1/6 second, when handle is released.

Just one of the big reasons why STOW ROTO-TROWELS are your best trowel buy! Within *one-sixth of a second*, Stow's Dead-Man Clutch Control stops the blades, but not the engine! That means Stow Roto-Trowels are SAFER, because the trowel blades stop the very *instant* the lever is released. What's more, this clutch makes the engine easier to start, since full throttle can be used if necessary. Stow Roto-Trowels also feature: fixed, non-rotating guard ring; pitch control on the handle; adjustable handle; lifting hook on the engine.

Available in 24, 29, 34 and 46" trowel diameters, in gas or electric models, Stow Roto-Trowels are built for safety and long life . . . built to produce excellent concrete finishes. For complete information on Stow Roto-Trowels, write for Catalog 560.

STOW MANUFACTURING CO.

19 Shear Street, Binghamton, N. Y.


March 8, 1950. Grafe-Callahan, represented by Mr. Peters, was awarded a negotiated contract by the Bureau of Reclamation on March 17 to drive a 2,200 ft 13x13 ft horseshoe tunnel through sandstone by May 28. Urged on by farmers who needed water by early May, Mr. Peters' mining crews worked round the clock to hole through on April 27, for an average advance of 72 ft a day.

Failure to complete the tunnel by June 2 would have cost $7,500 in penalties and if water was not flowing by July 1 the penalties would have totaled $175,000. The job was let at $610,000

## Linoleum Loses as Paving Material in Rhode Island

Some new highway paving materials are here to stay, but linoleum isn't one of them as far as Joseph M. Vallone, Rhode Island public works director, is concerned.

As an advertising stunt, a Cranston, R. I., flooring firm, recently laid a strip of new linoleum across heavily travelled Reservoir Ave. which goes by its front door.

Mr. Vallone, driving to work one morning, noticed the new paving and promptly told the store that the material was neither legal nor safe, as evidenced by auto tire skid marks on it.

At his suggestion, the store removed the linoleum and relaid it in its parking lot next door where it had been originally put down to prove its lasting qualities.

## $7 Million Dock Planned For Toledo Coal Handling

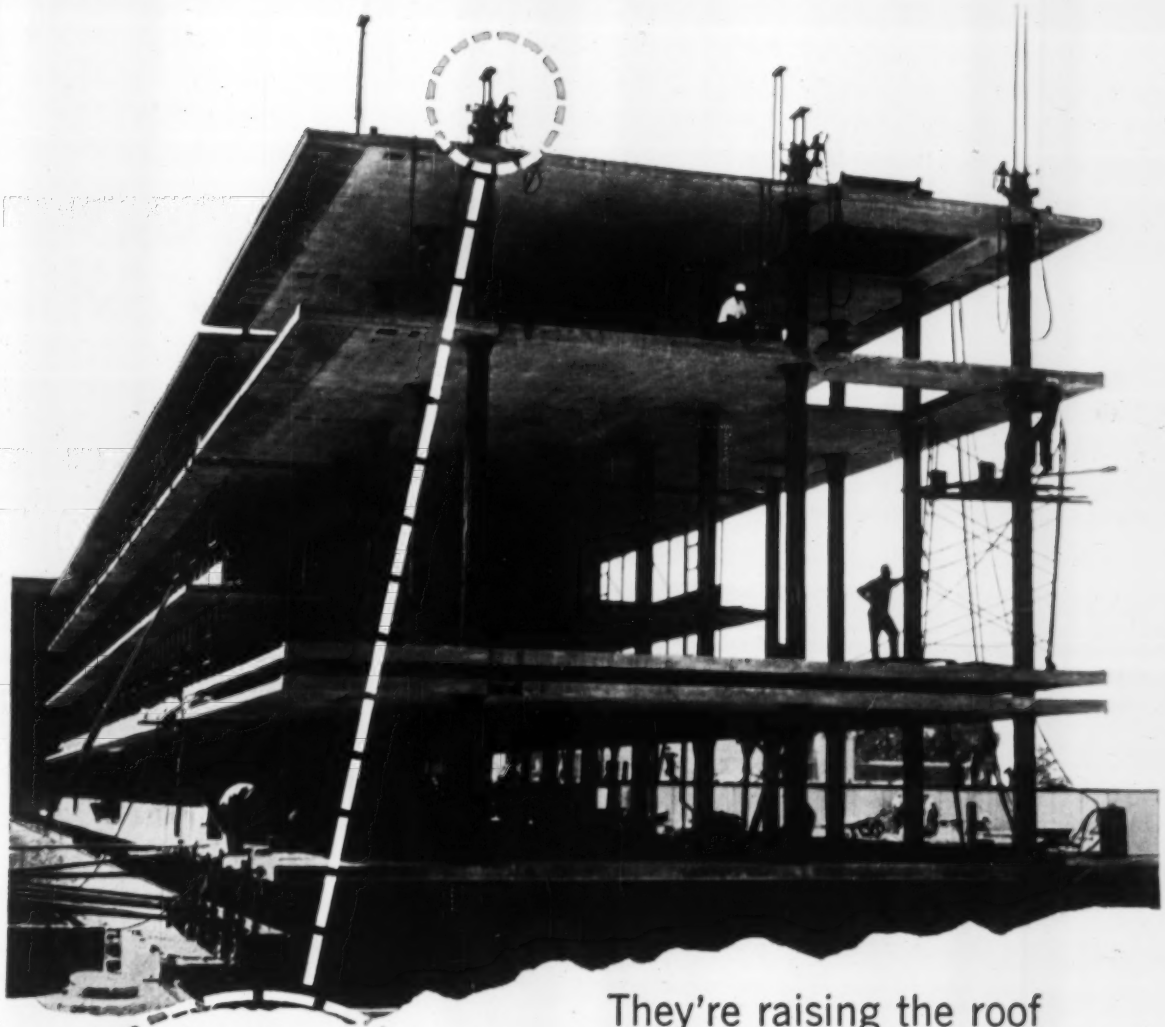
The Chesapeake and Ohio Railway will soon start building a $7 million coal dock at Toledo.

The facility, for transferring coal from railroad cars to ships, will have a capacity of 6,000 net tons an hour. According to the C&O, this is three times the volumetric capacity of any traveling ship loader ever built and the facility will have the fastest rotary car dumpers in the U. S.

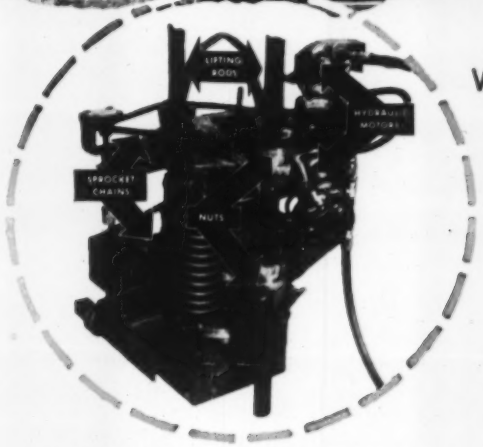
The C&O already has three large coal piers at Presque Isle on Maumee Bay, where it handled 17 million tons of coal last year. The new facility will be constructed on the outshore end of the present ore unloading slip.

The dock, first of its kind on the Great Lakes, is designed to load the largest ocean-going ships expected to use the forthcoming St. Lawrence Seaway. It will dump two railroad cars at once and feed coal from hold to hold without the ship being moved.

Completion is set for June, 1958. Contractors are Krupp of Germany and McDowell Co., Inc., Cleveland.



# They're raising the roof with **DENISON** hydraulic power




*Lifting jack used in this operation can raise slabs 4 feet per hour. Nuts are turned by sprocket chains actuated by Denison hydraulic motors.*

To the building scene, lift-slab has become a familiar sight in just seven years. Its contributions to design freedom and construction efficiency are well known.

As many as 48 cylinders are actuated simultaneously to raise each slab. At each cylinder a pair of nuts follows the slab, rotated by a Denison vane-type hydraulic pump-motor which furnishes accurately controlled torque to follow up this lifting action. When the cylinders are retracted for another stroke, the nuts hold the load in place. Responsive, easily controlled hydraulic power helps to make lift-slab a virtually foolproof operation.

You will find Denison hydraulic equipment on all types of construction equipment—from giant earth moving machines to hand-operated tools. Wherever it appears, you are assured of dependable, efficient hydraulic operation. Denison Engineering Division, American Brake Shoe Co., 1172 Dublin Road, Columbus 16, Ohio.

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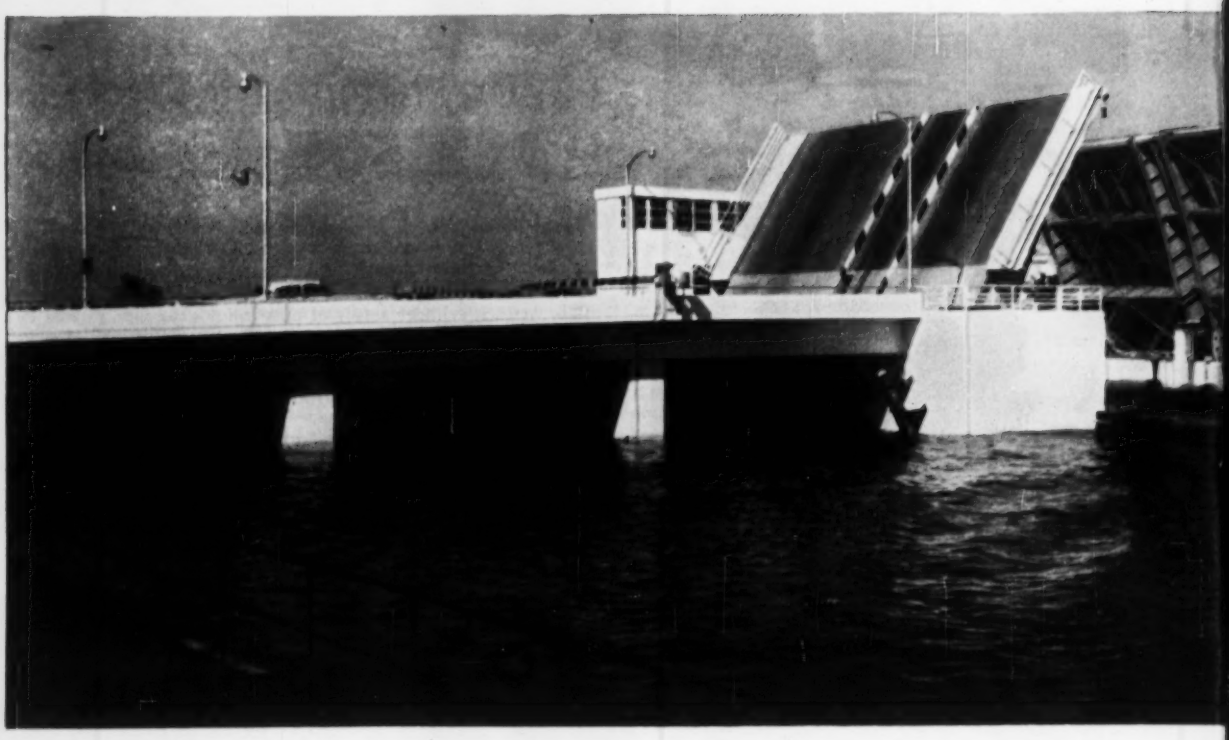
*Your guide to better performance in construction equipment*

**DENISON** HydrOILics

# LOW BRIDGE

## OPERATING AND MAINTENANCE COSTS WITH WESTINGHOUSE

Westinghouse-powered 63rd Street bridge, Miami, Fla.



A lot of traffic passes through and over the 63rd Street bridge at Miami, Fla. Smooth and rapid operation of the double bascule leaves is a must. Miami also considers it a must to keep operating costs and maintenance at a minimum. Performance and low cost are insured by the all-Westinghouse coordinated electrical system. Power distribution, control system and motors are engineered as a package, to fit the particular requirements of bridge operation. This is an important benefit in the Westinghouse policy of providing specialized know-how to assist bridge planners and contractors.

Consulting engineers: Palmer and Baker, Mobile, Ala. Electrical contractor: Astor Electric Service, Miami, and general contractors: Poston Bridge and Iron Works and George E. Runnel, Inc., Miami. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-94072

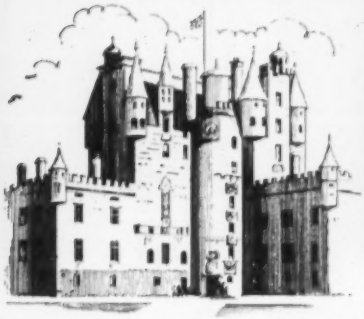
YOU CAN BE SURE...IF IT'S

# Westinghouse

(*Top*) Complete control of lock drive, warning signals and barriers on the busy bridge is centralized on this Westinghouse desk.

(*Middle*) Reliable Westinghouse CIP wound rotor motors power the lifting mechanism for each side of the broad 63rd Street bridge. Their operation is coordinated on the Westinghouse control desk.

(*Left*) Westinghouse special bridge type control switchboard.



Constructed of stone in 1675-87, Glamis Castle in Scotland has withstood the ravages of weather and time. Clamis is the ancestral home of Queen Elizabeth of Great Britain.

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## *Johns-Manville Corrugated Asbestos Transite® wears like stone*

For durability, Corrugated Transite is one of the most lasting building materials ever developed. Made of two practically indestructible minerals—cement and the ageless rock, asbestos–Transite looks and wears like stone. Like the famous old stone castles, original installations of Corrugated Transite are still giving service and protection under conditions which destroy other forms of roofing and walls.

Corrugated Transite can't burn, can't rot, can't rust. It has high resistance to acids, to gaseous fumes, to severe temperatures, to vermin and insects.

You save money on maintenance. Corrugated Transite requires no painting, no preservative treatment. It provides maintenance-free construction.

Corrugated Transite offers a way to save money on new construction and remodeling. The large sheets are low in first cost . . . require no special tools for application . . . can be installed quickly and easily over skeleton frame construction . . . are 100% salvageable.

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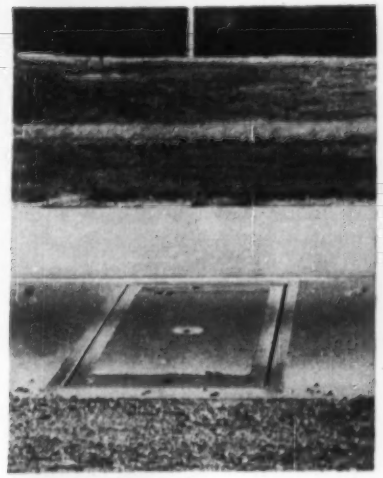
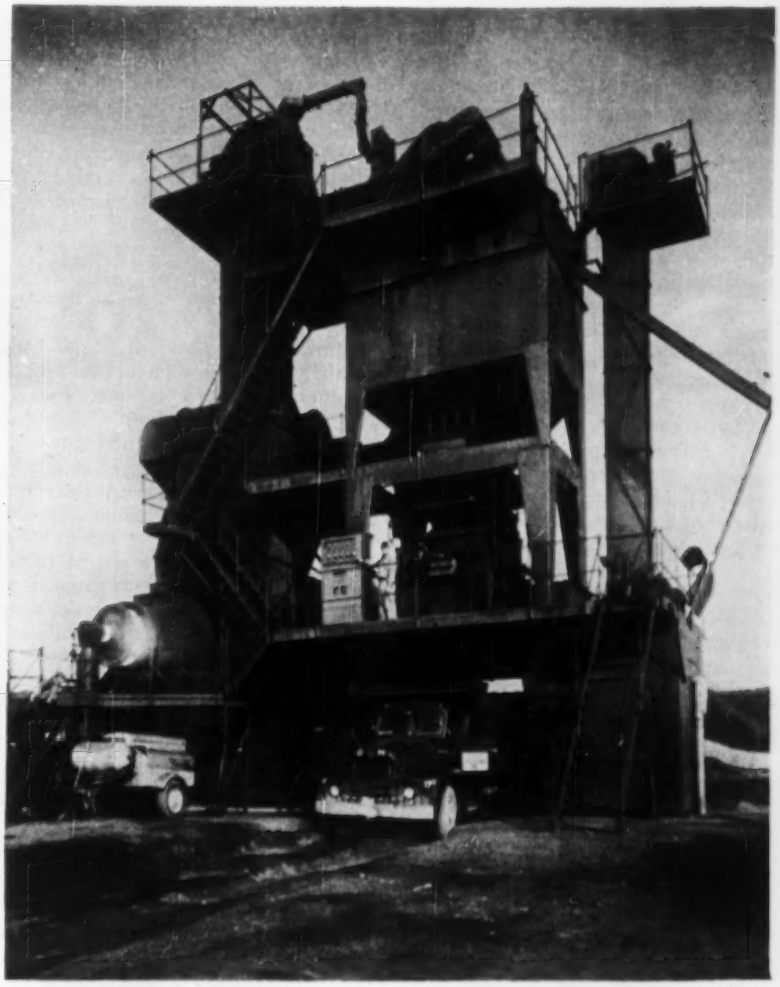


. . . electronic load cell units are embedded in highways.



**IN CONSTRUCTION,** electronic scales with automatic accessory units can take a lot of the guesswork out of concrete batching, determining pay quantities.

# How Do Electronic Scales Stack Up?

James J. Heatley
Smithtown, N. Y.

In the federal highway act the word "weight" is used more than any other word that connotes a type of equipment. Weighing for research, weighing axles for enforcement and weighing for taxation and statistic gathering all have received Congressional endorsement. And there are the much publicized "tons" of materials needed to put together the interstate highway system.

The expanded highway program then is focusing an unusual amount of attention on hitherto unsung weighing equipment.

For many years the lever type mechanical scale has been doing an effective job, in recent years aided by a multitude of accessories. Automatic pointers, visual weight indicators, net weight computers and weight signaling units have enhanced scales' usefulness.

But now a much publicized upstart is on the scene—the electronic scale. A comparison of its characteristics with those of the fulcrum-lever scale should be of value to scale users—in highways, heavy construction and municipal work.

• **Description**—The term electronic sometimes leads to confusion since there are so many new electronic attachments applicable to mechanical type equipment. The pure electronic scale incorporates a load cell unit.

A load cell scale supports its platform on squat steel columns to which resistance-wire strain gages are attached. Each capsule is approximately the size of a coffee tin. Platforms may be supported by 4, 6 or 8 of these units, depending upon capacity and size of scale. As the load is driven on the platform, the capsules or cells are compressed. The compression is measured by the strain gage and an electrical signal is generated which is read as a weight.

Many claims and counterclaims have been made for the electronic load cell scale. Is it as dependable, as accurate, and as economical as a mechanical scales?

• **Operation**—The electronic load cell scale offers but one operational advantage over the lever system—speed of response. Weight reaction is instanteous. This characteristic permits weighing in motion—impossible with mechanical equipment. Here the best example is the research application

## . . . Taking the mystery out of electronic scales

pioneered by O. K. Norman of the Bureau of Public Roads for recording truck axle weights at speeds up to 50 mph. Another application of the same device being attempted in several states is overload detection. Where truck axles passing over a roadway platform at normal speeds are near or over the legal limit, the load cell scale actuates a sign directing the offender into a stationary weighing station. Those trucks within the legal limits are directed by off-on signs to by-pass the weigh station.

A comparison of operating characteristics presents an unusual situation. When difficulty develops in a load cell scale system the instrument goes completely haywire and obviously performs inaccurately. When a mechanical scale for some reason develops an inaccuracy it usually will not become apparent until the next checking period when a calibration is performed with test weights. Essentially then, an out-of-tolerance operation may be immediately spotted on the electronic scale.

The accuracy of a load cell will not be adversely affected by the amount of usage. Manufacturers even claim that continuous use of a load cell is much better than sporadic use from an accuracy standpoint.

• **Accuracy**—Both electronic and mechanical scales are capable of extreme accuracy.

For years aircraft have been weighed with load cell equipment guaranteed to 1/20 of 1% of the applied load. This exceeds the tolerances recommended by the Bureau of Standards for commercial weighing equipment. Mechanical lever scales will produce similar accuracies although it is not the practice to guarantee standard models to such a fine degree.

Two electronic scales for motor truck weighing have been sealed in Minnesota under the rigid requirement of 1/20th of 1%.

The invasion of automation devices into the scale field has adversely affected tolerance guarantees. Analog to digital converters, large electro-mechanical visual indicators and other devices fail, in many cases, to transmit the potential high accuracy of the pit equipment through to the printed or visual weight.

Automatic readout devices are a fixed part of the load cell scale, while with lever systems much modernization may still be classed as accessories. If printed weights and speed are not requirements, a full capacity beam with a poise is still available to read the weight measured by the levers. The load cell scale has no such simple and inexpensive counterpart.

• **Maintenance and repairs**—Because there are no longitudinal or transverse levers in load cell scale installations the pit is clear of obstructions. All parts of the pit are generally visible from any position. The cleaning operation is important for scales used where materials congeal or harden, and gradually through accumulation affect the movement of the platform.

There are no moving parts supporting the platform of the load cell scale, no knife edges or pivots. The load cell is strictly a compression device which measures a strain in a steel piece loaded well within the elastic limit. No greasing or cleaning of pivots is necessary and the load cell itself is designed as a hermetically sealed unit. Wear therefore does not exist in the same sense as with lever systems.

Until load cell scales are in more widespread use service will present a problem in many areas. The scale companies themselves face a technician training problem and an expansion of their facilities for electronic servicing.

Often a mechanical scale may be returned to tolerance by simple adjustments. Load cell scales that become inoperative almost always need parts replacement and until a more thorough service history is developed, the necessary parts may not be on hand. In addition, electronic scale replacement parts are relatively expensive at present.

In case of a pit component failure on an electronic scale within highway program ranges, its replacement would represent a far higher percentage of first cost than a comparable failure on a mechanical scale.

• **Initial cost**—Generally it may be stated that the first cost of load cell equipment in the capacities applicable to road construction and state highway department operation will be higher than mechanical scales with the same features and capacities. In the higher capacity scale field, i.e. track scales of 300,000 lb capacity and longer than 60 ft, the reverse will be true.

Shipping costs, a not insignificant item in far-flung highway work, also are generally lower with electronic scales. Levers are heavy while electronic equipment is light. The entire shipping weight of a 100,000 lb load cell scale will rerely exceed 1,000 lb. The levers alone on a mechanical scale of similar capacity would have a shipping weight of about 14,000 lb.

The load cell scale requires a platform equally as strong and equally as expensive as for a mechanical scale. A lever scale platform may be easily adapted to a load cell installation. The converse is also possible with but a little additional complexity.

The load cell scale may sometimes allow a shallower pit depth, which yields a saving in concrete and excavation. Unfortunately there is a practical limit to the shallowness since there must be adequate space under the platform for pit cleaning, inspection, and accessibility for component replacements.

On platforms up to 40 ft in length, the depth economy is not really significant. But on a 60 ft track scale for example, 5 ft in depth can be saved with an electronic scale.

• **Flexibility**—Electronic scales are more adaptable than lever systems. They may be moved and reinstalled with less time and effort expended. They are adaptable to existing pit designs where a mechanical scale has become obsolete, or perhaps where an increase in capacity is desired. The expense of a new foundation plus a new mechanical scale in most cases would exceed the cost of the electronic scale for use in a sound existing foundation.

Moving an electronic load cell scale from one installation to another, even in the highest capacities, may be accomplished in a private automobile while similar activity involving a lever system would require motor truck and hoisting facilities.

It seems fair to conclude that the electronic load cell scale has a bright future in the construction industry.

## How Much Does It Cost To Heat and Cool Homes?

For $10.64 a month, a 1,200 sq ft dwelling can be heated and cooled if sound thermal principles are followed in the design and construction.

This is the average fuel cost estimated by engineers of the Owens-Corning Fiberglas Corp. from plans for 120 of the 172 houses entered in the company's nationwide test program on low-cost home heating and air-conditioning (ENR Sept. 6, 1956, p. 99). Actual fuel bills will be available to check the estimates later this year, at the end of the cooling season, and late next spring, after the winter heating season.

Begun in the fall of 1955, the test program now includes houses in 81 cities, in 29 states.

Cooperating with Owens-Corning are 160 builders and 65 utility companies. The builders followed Owens-Corning recommendations regarding insulation, shading and other features affecting heating and cooling characteristics of the houses. The cooperating utility firms are metering heating and cooling equipment separately in the test buildings.

Of the 172 houses entered, 76% are heated by gas, 15% by electricity and 9% by oil.

*It's smart . . . It's steel—*

# *It's* STRAN-STEEL'S NEW BUILDING LINE FOR INDUSTRY

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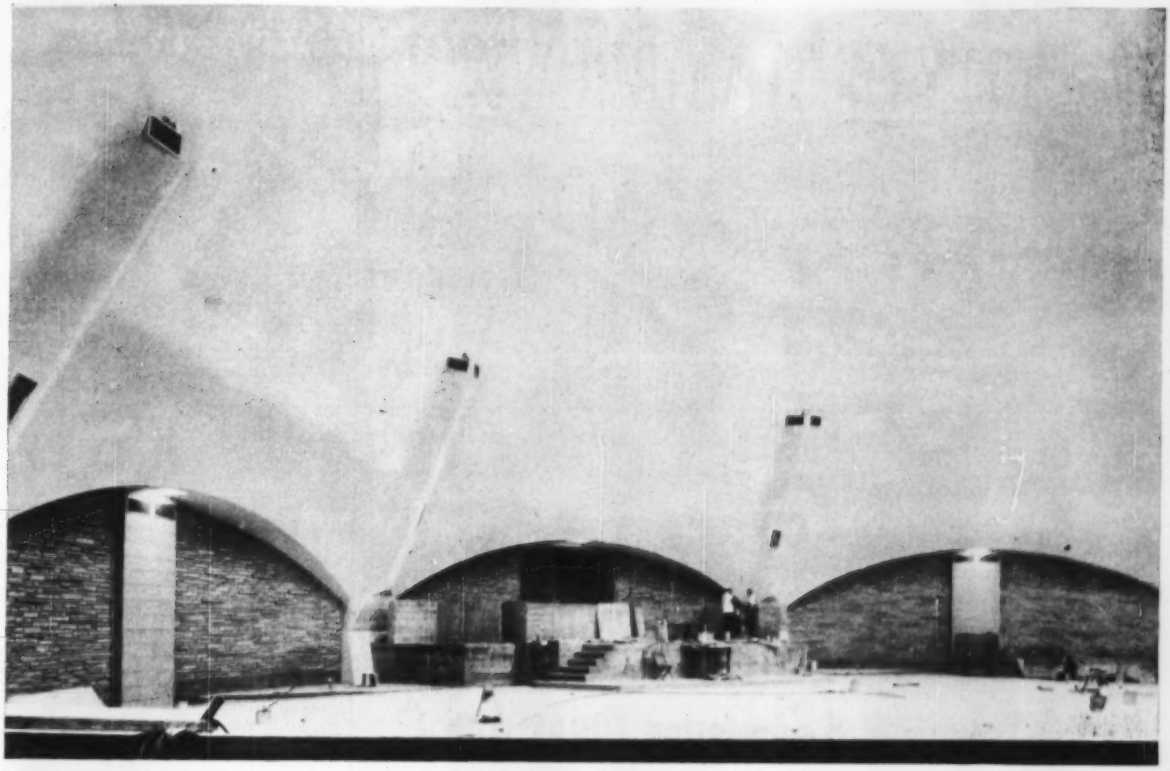


**INTERIOR** of the First Christian Church, Oklahoma City, Okla., is capped by a scalloped-base, thin-shell concrete dome.

# New Design Concept for Church Roofs

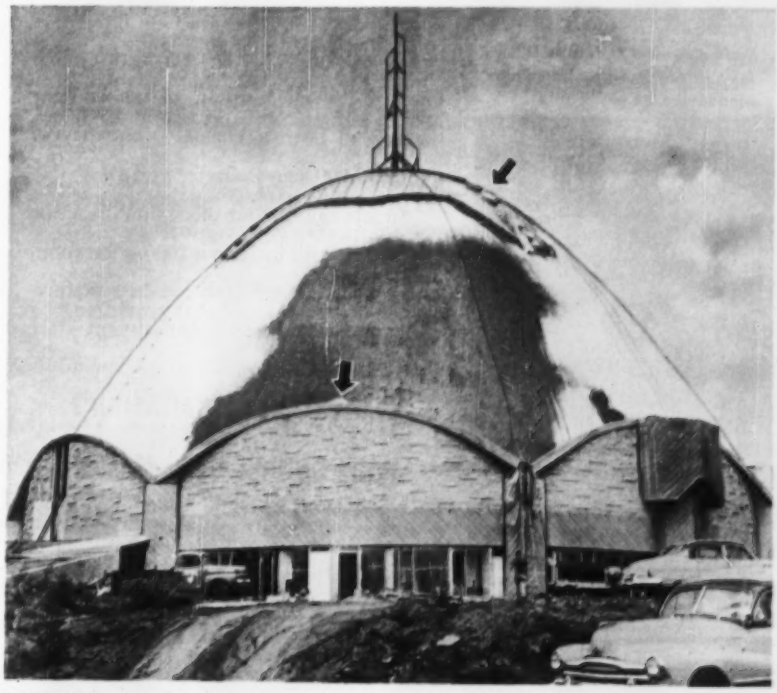
Thin-shelled concrete domes, with scalloped bases, engineered and designed by R. Duane Conner, Oklahoma City architect, are providing economical vaulted roofs for several churches in Oklahoma City. In addition, they provide the esthetic appeal expected of such edifices.

Two good examples are the roofs of the First Christian Church of Tomorrow and the St. Christopher Episcopal Church.

The First Christian Church is a circular building 142 ft in diameter. The crown of its parabolic dome rises 88 ft above ground level. Thickness of the dome concrete varies from 8 in. at the supporting columns to 3½ in. in the upper parts of the dome.

The dome is supported by eight cantilevered columns. The columns are tied to an upper floor system 10 ft above ground level and rest on 10 ft deep bell footings of 10 ft diameter. Between the columns cut out arches extend into the dome 10 ft above the springline, which is located 17 ft above ground.

There was some speculation that the arches would destroy dome action and tend to create bending in the shell. However, when the shoring was re-



**EXTERIOR** of the dome is given a marble-chip finish. Skylights (arrows), are located at the crowns of the cut-out arches and atop of the dome, where they form a cross.

# the "CITY OF TOMORROW"*

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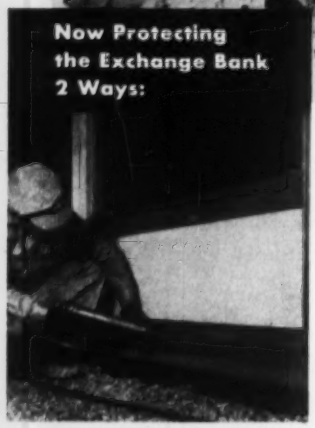

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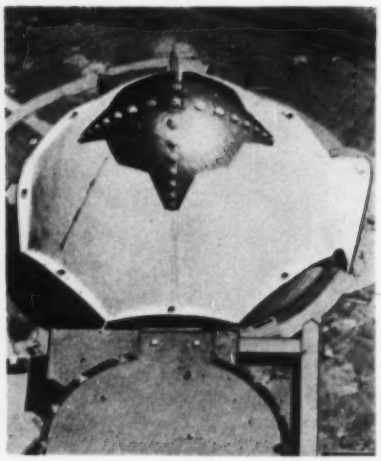
## . . . Church roofs



**UPPER PORTION** of dome is covered with stainless steel in the form of a cross.

moved strain gages set at several elevations to measure horizontal spread and deflection showed no measurable spread and a minus deflection of about ¼ in.

The dome was constructed of expanded-clay concrete pneumatically applied.

The top one-fourth of the dome—a cross-shaped area—is covered with stainless steel roofing applied directly to the concrete.

The remainder of the dome's surface was given two coats of concrete waterproofing and covered with a plastic cement and glass fiber membrane.

A marble-chip mix was then applied as the finish coat.

For lighting, 29 transparent plastic bubbles were built into the peak of the dome in the form of a cross. These skylights vary from 2 to 6 ft in diameter. In addition, each of the eight cut-out arches has a 2 ft-square skylight at the crown.

The church sanctuary is air conditioned by equipment capable of 104 tons of cooling. No attempt was made to control air temperatures above the 25 ft level in the sanctuary.

The cost for the 2,000 seat sanctuary, 4-story school building, a 250-seat fine arts building and a 150-ft carillon tower totaled $1,124,000.

For the St. Christopher Episcopal Church, the roof is a parabolic shell with a 32 ft span, 16 ft rise and a length of 64 ft. Thickness of the roof ranges from 2¼ in. at the crown to 7 in. at the base. Including three adjacent classrooms, kitchen and air conditioning, the project cost $40,000 or $10.32 psf.

For both churches, Frederickson & Parks was general contractor and Warren E. Sullivan, the structural engineer. Both are from Oklahoma City.

# 225,000-SQUARE-FOOT **PROOF** OF

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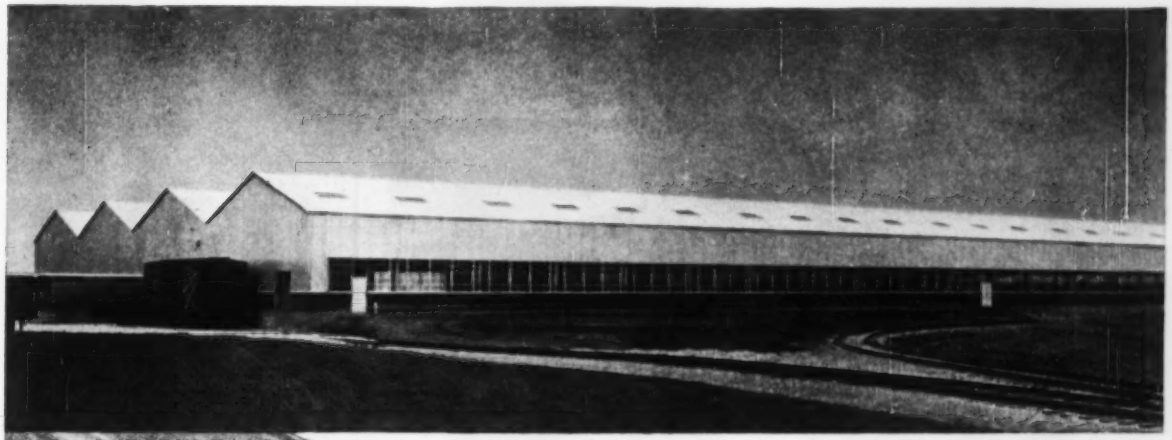

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See "Circus Boy", Sundays, NBC-TV.

# REYNOLDS ALUMINUM

## BUILDING PRODUCTS

**When the contractor hit warm water on the wrong side of the lot, he thought he had trouble — a billion and a quarter gallons and 13 months later, he was sure of it.**

**SOUPY MESS** remains at the bottom of west side after months of pumping.

**WELL POINTS** angled under adjacent building

# Pumps And Weight Keep Hospital Out

More than 1¼ billion gallons of water, most of it taken from the ground during a 13 month period at temperatures up to 68° F. has put construction of Harlem (New York City) Hospital's newest addition about eight months behind schedule.

With water being moved at the rate of several million gallons per day from Feb. 14, 1956 until Mar. 20, 1957, the contractor had a major problem: the basement floor and the foundation walls formed, in effect, a ship—a ship he dared not float . . . but one that would have floated if the pumping stopped.

For this reason pumps had to work until 12 stories of structural steel were erected, and until basement mezzanine, first floor and first floor mezzanine slabs were in place. Only at that point did engineers decide there was enough weight to hold the foundation down against the hydrostatic pressure.

The scene is a 130 x 175 ft lot in uptown Manhattan, where New York City's Department of Public Works is adding a new General Care Building to existing hospital facilities. Bounded on the south by 136th St. and on the east by 5th Ave, the site is only a few hundred feet west of the East River. A certain amount of water was expected, particularly on the river side of the excavation, and provision was made for disposal.

As it turned out, the river did not create the problem. It was from the western land side of the hole that the trouble came. Here, immediately next to the 30 year old Women's Pavilion, the excavation drops more than 12 ft below the first floor of the older building—and from here the contractor pumped enough warm water to fill a lake 10 ft deep, a mile long, and ½ mile wide.

Final elevation of the general excavation was set at −6.68, with a trench for footings on the west side cut down to an elevation of −10 to −12. Borings indicated a water table at +2.00, so the contractor, Psaty and Fuhrman, planned a two-stage dig with the test piles and well-points going in from a working elevation of +4.00.

• **Pumping plant**—The initial wellpoint installation—expected to handle the entire first stage of the pumping operation—consisted of 145 points connected to a 600 ft header. The header was in two 300 ft sections with each section worked by a 2,500 gpm pump with a 10 in. discharge. One of the pumps was intended as a working unit and the other as a standby, but to speed initial dewatering, the plan called for using both machines for the first three weeks.

As it turned out, both pumps remained in operation, and within three months a third pump was added temporarily. At most times after the start of pumping, the wellpoint output exceeded 2,200 gpm.

• **Trouble starts**—The contractor started the second stage dig after the wellpoints were installed, and almost immediately discovered that water on the western

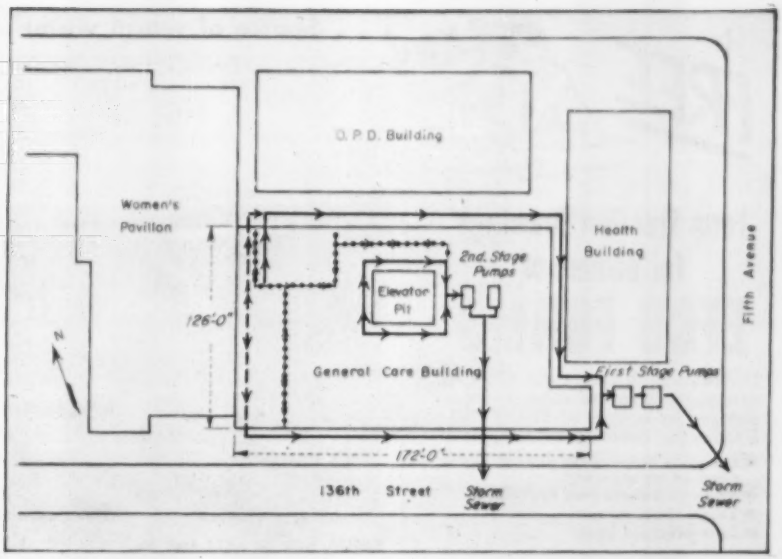
were an unexpected necessity.

# of Hot Water

end of the excavation had not dropped much below the original watertable. Tests did show, however, that the water level had dropped to between −11.0 to −14.0 in other areas. At the west side of the hole, where very little water was expected, the elevation had been dropped only to elev. 0.0.

As the digging progressed, the stream flowing into it from the west threatened to undermine the adjacent Women's Pavilion of the hospital. Although this structure is on piles, the level of the bottom of its pile caps is at about El. 0.0 or 12 ft above the bottom of the pile caps in the new building. The contractor erected reinforced concrete retaining piers beneath and between the exposed pile caps of the existing structure. Piers were carried to a depth of 6 in. below the proposed excavation. Center piers were held in place by cables attached to the existing piles. Between the retaining piers, timber lagging completed the retaining wall.

The original wellpoint installation




**WELLPOINT SYSTEM** as originally planned (solid line) was less extensive than final installation. Of extra systems, that shown by dotted line was not salvaged, that shown by dashed line, was recovered in part.

**CABLE AROUND OLD PILES** was used to stabilize new center retaining pier. New pile cap here was raised because water could not be dropped below Elev −9.00.

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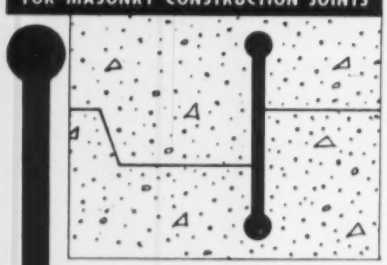
**FOR MASONRY CONSTRUCTION JOINTS**



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*See Sweet's, or Write for Information.*

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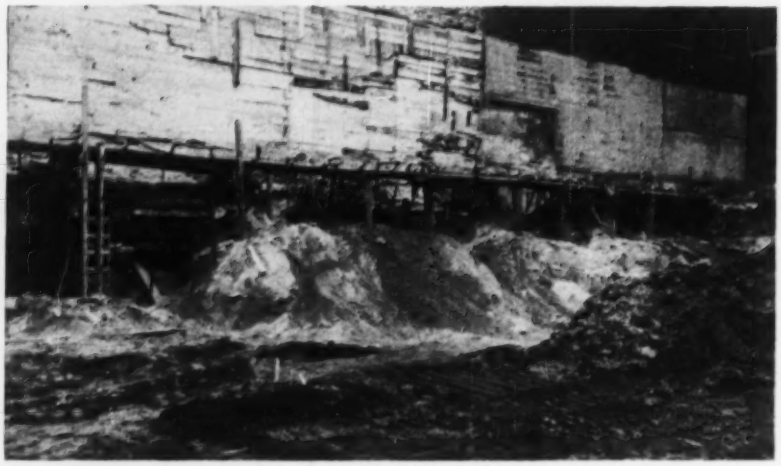
## . . . Source of warm water still an unsolved riddle



**BERM,** four to eight feet high was left at N.W. corner as long as possible to stem flow of sand and water from beneath adjacent building.

called for a single 40 ft header placed 19 ft from the wall of the Women's Pavilion and carrying 10 vertical points.

When that system failed to handle the water, the contractor ran a perpendicular header to within 4 ft of the wall of the Women's Pavilion, made a 90° turn, and extended a header along the pavilion wall for its full length. In this line were 24 points with 21 ft vertical risers. With the water still giving trouble, the northern 40 ft was moved to the west in order to have a straight run of 125 ft adjacent to the wall of the Women's Pavilion.

• **Water source?**—Meanwhile, city officials, contractor's representatives, and consulting engineers hired by both were trying to find the source of the water. The temperature posed a riddle that has not yet been solved to the satisfaction of all concerned. During February and March of 1956 it held firm at 68 deg F. Early in April it started to drop slowly and by early July it reached 49 deg F. From this point the water temperature began to rise until the middle of August when it reached 64 deg F. From then until pumping was stopped seven months later the temperature of the water remained fairly constant.

Although great volumes of flow ruled out probability of leakage from adjacent installations, the question of temperature brought out chemists from Harlem Hospital and engineers from the Department of Public Works, and the Department of Water, Gas & Electricity.

Uranine, a green dye, was poured into hospital drains and into sewers on adjacent 137th Street and 136th Street, but none appeared in the hole. Tests conducted by the DWG&E proved that the water being picked up was not from Croton Reservoir, supply source for the area. Hospital chemists, when certain that the water was fresh, completely free of sewerage and in fact fit for drinking, ruled out the nearby East River or adjacent sewers as a source.

• **Outside points installed**—When volume of flow interfered with underpinning, additional points were angled under the Women's Pavilion to take up the water before it reached the hole. Twenty-four points with 18 and 21 ft risers were placed at varying angles under the building. These points were permanent and were worked until early September when they were cut and concreted into the wall of the new structure.

Placing points beneath the Women's Pavilion did not solve the problem. The underpinning contractor was ordered to face the timber lagging with reinforced concrete walls between retaining piers to provide a continuous retaining wall beneath the structure. The new wall merely lowered the elevation at which the water entered the excavation, so the entire west end of the hole was sheeted to El.-22.0 with 14 ft interlocking steel sheetpiles. In the space between the sheeting and the retaining wall a 2 ft deep concrete plug was poured.

Before completion of the pile foundation the center of the sheeting had been pushed into the lot as much as 11 in.

Despite all efforts, water in the western side of the excavation did not drop below El.-9.0 (3 ft above the required depth of the excavation.)

• **Lower stage pumping**—In March, 1956

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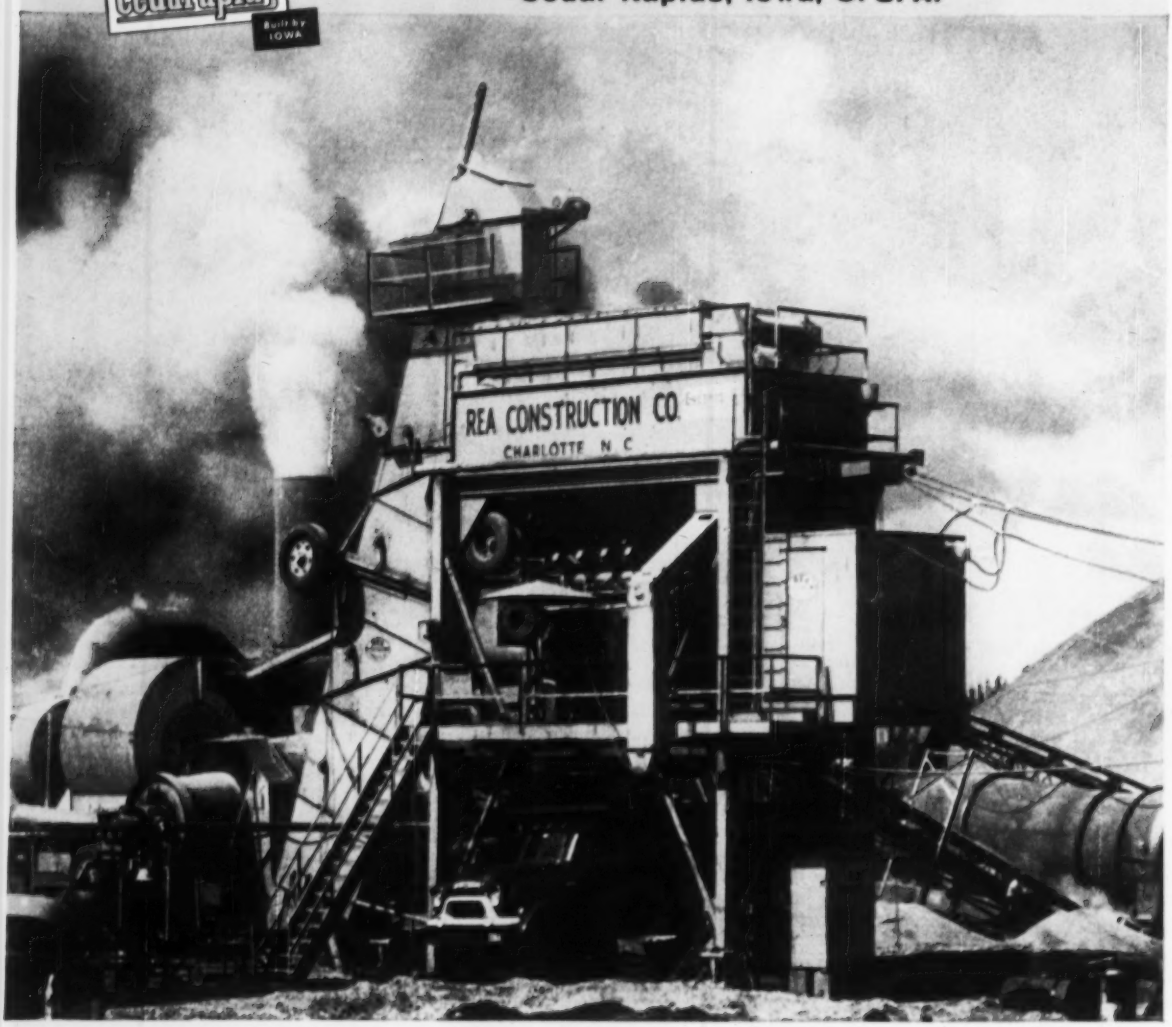

## . . . Water flow is unabated

a lower stage of the wellpoint system was installed for an elevator pit. This added 26 points to the system. When the new points returned very little water a check was made and it was discovered that their 18 ft risers were in a clay stratum. It was necessary to put an additional 20 points into this system with 10 ft risers, in order to pick up water from higher strata. With 46 points encompassing the 20 x 27 ft elevator pit and served by existing pumps, it still required a portable 2 in. pump to lower water during pit operations.

In early April it was necessary to install another header 16 ft from the wall of the Women's Pavilion. This header was buried at an elevation of −8.0 and carried 61 points with 10 ft risers. One section branched out to cover two sides of a condensate pit dug in the northwest corner. The entire circuit was connected to the lower stage wellpoint pump. This system, which operated until all pumping was completed, was not salvaged after use.

In spite of all the pumping, the water elevation in the northwest corner was still high enough to force redesign and raising of two of the lower pile caps. In adjacent unraised pile caps, water was four ft deep except during concreting when additional pumping was installed. The condensate pit, which was to go to elev.-13.00 had to be moved eastward 13 ft before its depth could be reached.

During the water battle of the western wall, pile driving was under way in drier areas. As the pile drivers moved in the trouble section, it was necessary to remove and replace section after section of the upper header to give the driver access to the working location. The western upper header which had been supported up to this time by props, was attached to the Women's Pavilion by cables hooked to steel pegs.

Because the first stage header on the west wall could not be removed the concrete in the basement wall was installed in two lifts. The first lift was carried to within 1 ft of the underside of the header. The header was then removed in sections as the second lift moved in. The wellpoints which were angled under the Women's Pavilion were disconnected, sealed and left in the wall of the new building.

The water was finally controlled, but according to both Arnold Borhaug, project superintendent for Pstay and Complete Machinery Co. which installed the wellpoints, its rate of flow was constant until the day the pumps were shut down—and even now no one is quite sure where it all came from or why its temperature was so high.


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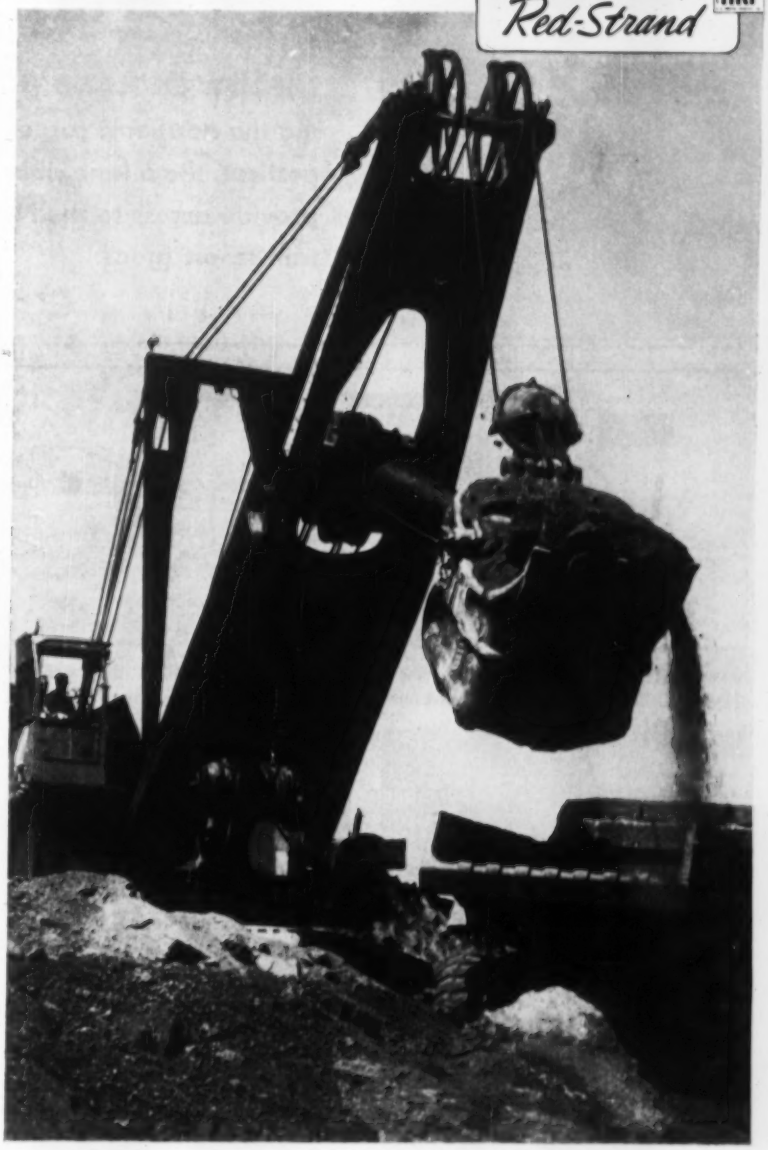

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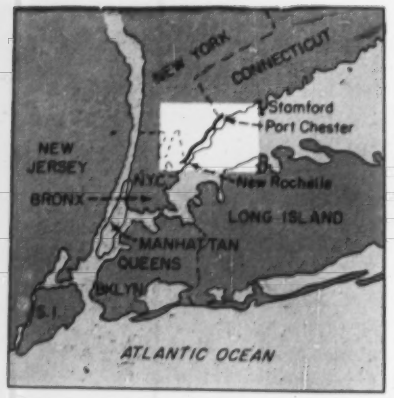
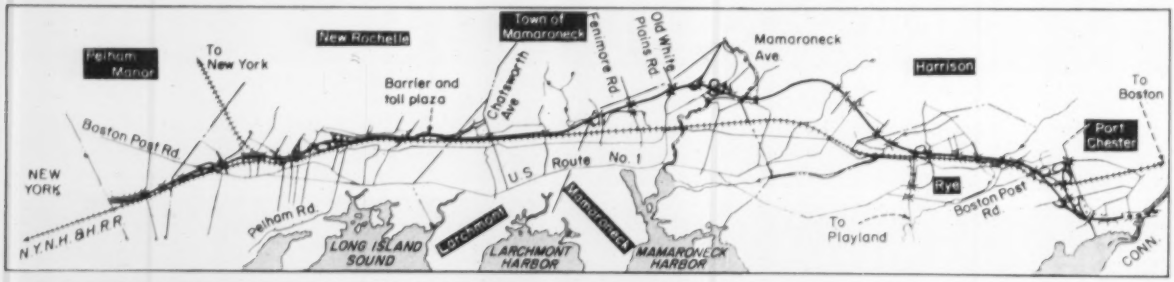


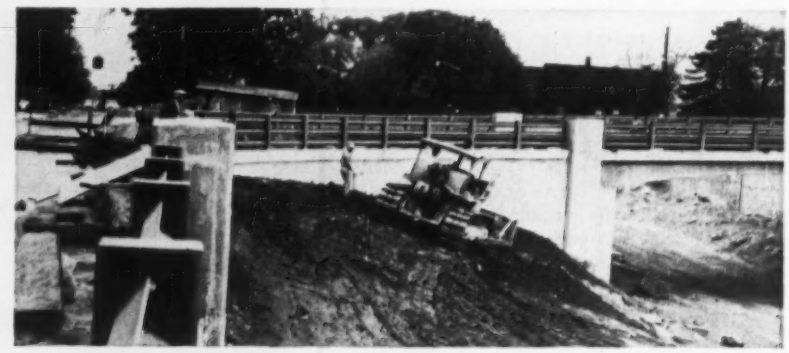

# Through 8 Cities—12

**THE NEW ENGLAND THRUWAY—In addition to linking the northeast corner of New York City with Connecticut, the 6 lane ribbon of reinforced concrete will provide access to the New York Thruway and mountain resort areas.**

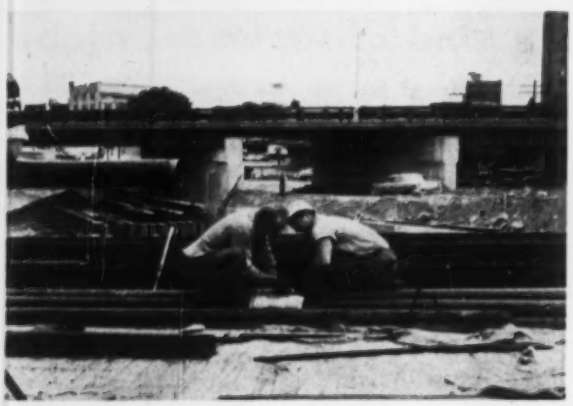



**New England Thruway**—linking New York City with Connecticut at the Byram River, will substantially reduce heavy truck traffic now plaguing U. S. Route 1 and the numerous communities through which it runs.

**Carpenters** are erecting forms for curbs to be cast in place at Division Street.



**Bulldozer** was used to finish grade one of the slopes along side an access road to southbound Thruway traffic.



**Ducts** were installed underneath the bridge sidewalks to carry utilities across the Thruway.

**Blasting crews** tamp dynamite into place in preparation for another bite in a rock cut along the New England Thruway.

# Non-Stop Miles

Now more than half complete, the 12-mile-long $35.8 million New England Thruway will serve the nation's biggest city, eight of its major suburbs, and provide direct access to Connecticut's new turnpike.

But to make it ready to do that job has been a continuing headache for local and New York State officials, engineers and contractors.

The Thruway—a 6-lane ribbon of 9 in. reinforced concrete—will eventually link the northeast corner of New York City at a point just west of the city limits with Connecticut at the state line—the Byram River. The roadway construction involves no less than 38 bridge structures.

With an eye toward future connection to the parent, 486 mile New York Thruway, a complex interchange is being built with an access road aligned toward the west, near the Boston Post Road in the City of Rye. From this alignment, a road will eventually be constructed under a separate contract that will cut through White Plains and onward to an interchange on the New York Thruway near Tarrytown, on the Hudson River.

Threading through one edge of fashionable Westchester County, the project is divided into five sections. To date, one section is completed—a 1¼ mile stretch from the New York City line to Kings Highway in New Rochelle. The Mount Vernon Contracting Corp., in a joint-venture with Wosstroff-Oliver, Mount Vernon, started the road construction in January 1954 with receipt of a $2,680,000 contract.

A typical cross-section of the Thruway consists of two 12 ft lanes and one 13 ft lane on each side of the centerline (which is marked with a steel guard rail that runs down the center of a paved dividing mall). On the outer edge of the roadway there is a 9 ft shoulder.

Pavement throughout is the standard 9 in. of reinforced concrete, with cast-in-place concrete curbs. On the bridges, the decking will be built up of structural concrete and then topped with a minimum 4 in. concrete wearing course. The shoulders will eventually be paved also.

**• Problems: Demolition, silt and rock**—The most built-up and congested area was the section that runs from Kings Highway to Chatsworth Avenue. This is the section being built by A. A. Johnson Corporation, McLean-Grove and Company, Inc., New York City, at an approximate cost of $12,359,000.

Before work could ge[illegible] way, a 7 story building had to be demolished, as well as two churches, a concrete warehouse and some apartment houses of three, four and five family category. Many individual homes had to be removed. Two old cemeteries had to be relocated: One was the Huguenot and the other the Allaire Cemetery, dating back to 1690. Two stations of the NYNH & H Railroad that were on the Thruway right-of-way had to be torn down and new stations erected.

In a section adjacent to the Pelham Country Club in Pelham Manor, the contractor ran into some difficulties of a different sort. Here the problem was an underlying strata of silt and organic materials that were unsuitable as a sub-base. The right-of-way had to be mucked out, the unstable material removed and a fill, consisting of suitable sands and road gravel, brought in.

A similar problem was encountered in the area north of the toll plaza near Chatsworth Avenue, where considerable mucking operations were required. The affected portion of the roadway consisted of an area from 0 to 25 ft deep, 100 ft wide and for an approximate length of 1,000 ft. Retaining walls were subsequently required in this location.

The construction problems varied from unsuitable slimy silt soils to the hard dense rock formations. At Chatsworth Avenue, a 50 ft rock cut had to be made through 1,000 ft. It is here that the ground rises into a knoll of a natural rock formation.

A 30 ft rock cliff had to be blasted from White Plains Road to Fenimore Road in the Village of Mamaroneck.

**• Structures**—The Thruway is carried over 16 streets, streams and railroad tracks, passes under 22 structures that carry streets or other arteries. The only traffic barrier will be at the toll plaza at the north end of New Rochelle.

Most of the bridges are steel-span concrete-decked highway bridges with concrete abutments—standard with New York's public works department.

But some of the bridge structures are different—for instance, the one at Boston Post Road in New Rochelle, which is skewed at 32 deg 30 min and has a fascia girder beam of 140 ft.

The 1,260 ft steel viaduct which crosses the NYNH & H Railroad tracks, also in New Rochelle, is another skewed structure. The span is 173 ft on one side, 109 ft on the other, with a skew of 30 deg. The viaduct girders are all large, built-up plate girders—some being as much as 12 ft 2 in. high—which were brought to the job site in sections, assembled and riveted on the ground. Approximately 5,300 tons of structural steel was used in this erection, which was done by the Phoenix Bridge Company.

**• Interchanges**—Three vital interchanges are being built to serve the New England Thruway. One is located in the Village of Mamaroneck and provides a link to the principal north-south street, Mamaroneck Avenue.

Two others are in Rye—one being the future link to the main thruway. The other, just south of North Street in Rye, N. Y. will provide an access road to Rye Playland, an amusement area which draws very heavy traffic during the summer months.

**• Underpinning**—The old masonry NYNH & H Railroad bridge located on Ceder Street required underpinning. This type of bridge was originally built of stone, directly on the ground with practically no footings at all. They stood up providing the ground around them was not disturbed, but with the blasting and earth moving operations on Ceder Street, the bridge required supports. Consulting engineers for the entire section representing New York State are the firm of Briggs, Blitman and Posner.

## Who's Doing The Job

| From | To | Contractor | Miles | $ Cost | % Complete |
|---|---|---|---|---|---|
| New York City | Kings Highway New Rochelle | Mount Vernon Contr. Corp. Wosstroff-Oliver Mount Vernon, New York | 1.25 | 2,680,000 | 100 |
| Kings Highway New Rochelle | Chatsworth Ave Larchmont | A. A. Johnson Corp., McLean-Grove & Co. Inc. New York City, New York | 2.83 | 12,359,000 | 79 |
| Chatsworth Ave Larchmont | Barry Avenue Mamaroneck | A. E. Ottaviano Croton-on-Hudson, New York | 2.49 | 7,250,200 | 20 |
| Barry Avenue Mamaroneck | Highland Road Rye | Yonkers Contracting Co. Yonkers, New York | 3.54 | 5,057,200 | 80 |
| Highland Road Rye | Byram River Bridge | Mount Vernon Contracting Corp., Mount Vernon, N. Y. | 16.8 | 8,584,900 | 22 |

**KANSAS TURNPIKE** Self widener purchased for use on Kansas City, Missouri, Freeway interchanges—built in flexibility made use on Kansas Turnpike equally profitable.

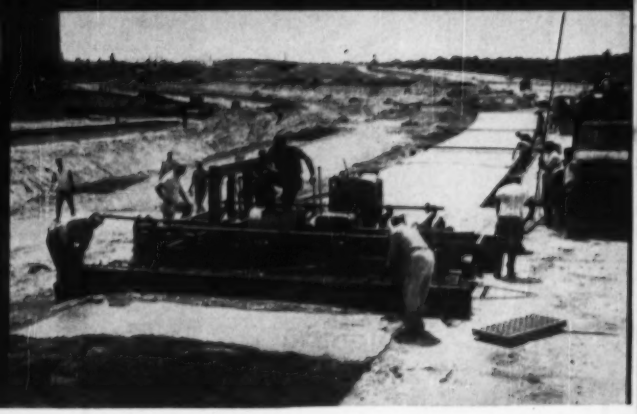
# Again Flex-Plane has the nation's number one finisher

For the past three years, contractors have bought more Flex-Planes than all other makes — They will again in 1957...here's why

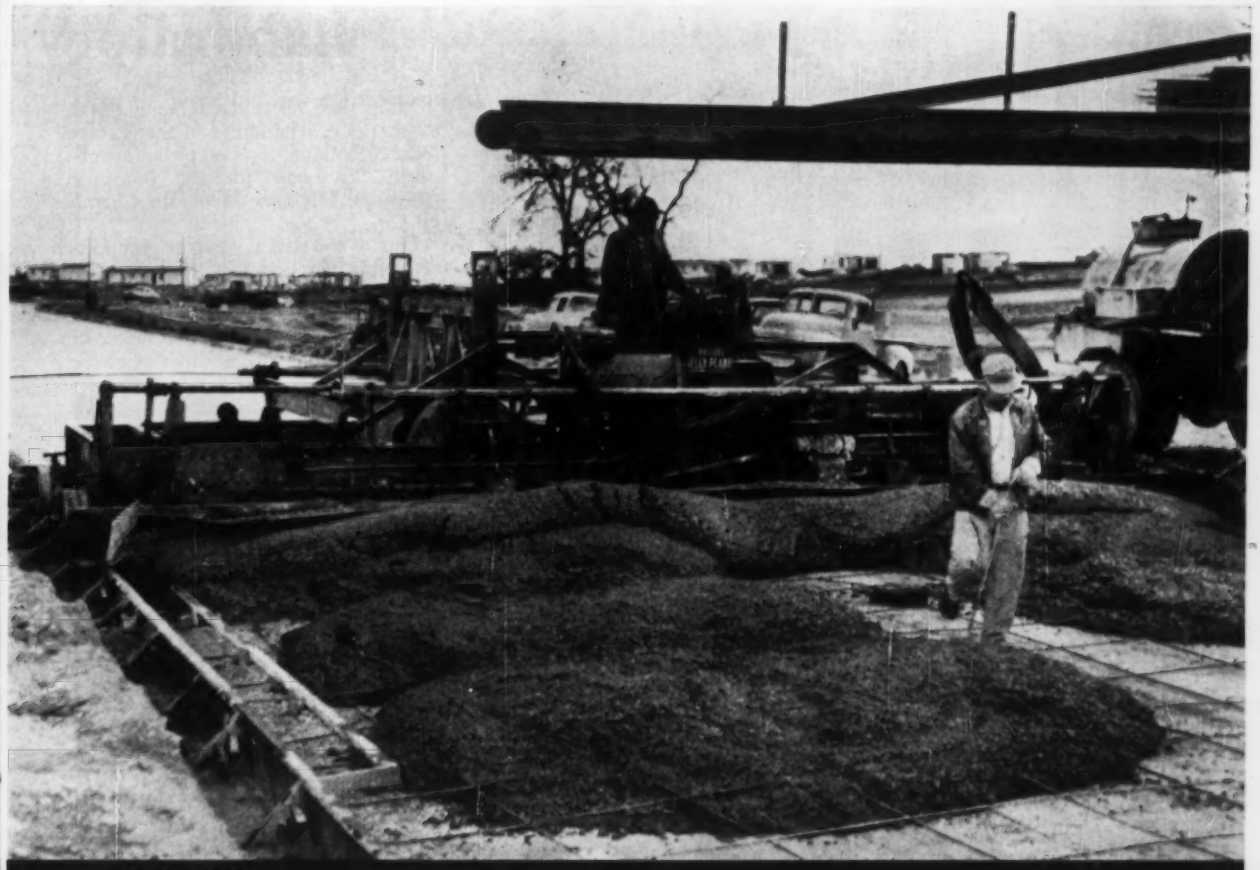
From the moment the FLEX-PLANE finisher was introduced it has been the favorite of the nation's highway builders. For the past three years it has been in a class by itself—the most versatile, most flexible, most portable and least expensive to operate of any machine on forms.

Now, for 1957, the FLEX-PLANE finisher is ever

**INDIANA TURNPIKE** More miles of Indiana Turnpike were finished with Flex-Plane machines than any other.



**NEW JERSEY TURNPIKE** Holland Tunnel cutoff had many ramps and intersections. Self-widening feature paid dividends.



**TEXAS CITY STREETS** Contractor reported highest pouring ever. Credits Flex-Plane. Note amount of concrete in front of screed here.

better! It is more flexible, stronger and faster than ever! Inherent frame design features allow the greatest amount of flexibility—*even as much as 12 to 25 feet in one machine!* And, there is a complete line of FLEX-PLANES to cover any width range desired. Only FLEX-PLANE self-widening offers independent control of extension frames, which means both sides of the machine can be extended or retracted together—*or individually*, for the negotiation of complicated interchange patterns involving variable width and short radius super elevated curves. But, more important, it is the only really proved self-widening machine available today. More than 60 units operating throughout the nation attest to this.

The FLEX-PLANE carries the largest screeds in the industry-delivering the most satisfactory finish possible. Exclusive butt joint screed design enables screed lengths to be changed faster, easier than ever before. It is completely portable—a flick of the finger and it, instantaneously, becomes its own trailer.

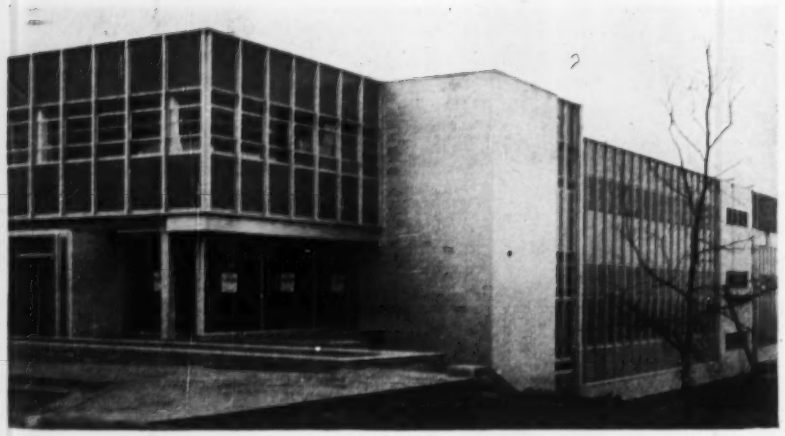
Why not let FLEX-PLANE put you in contact with a FLEX-PLANE user? Talk to him and we are sure you, too, will GO FLEX-PLANE IN 1957!

**GARDEN STATE PARKWAY** Contractor watched machine operate on nearby Route 1 project. Bought immediately.


Flex-Plane — Heltzel

**THE FLEXIBLE ROAD JOINT MACHINE COMPANY**
516 THOMAS ROAD · WARREN, OHIO

# Laboratory

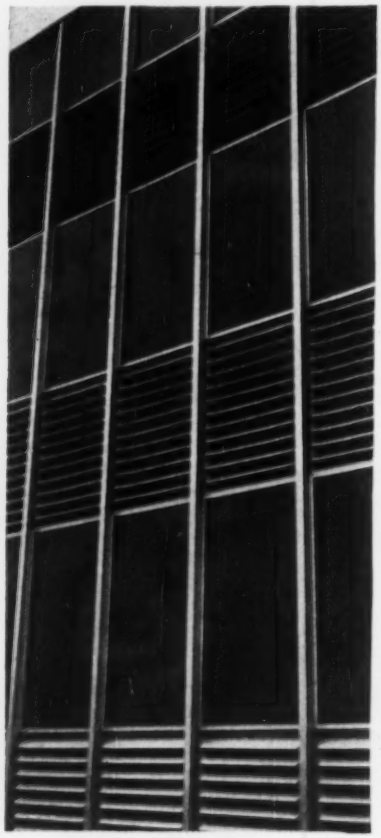


**Wherever it was feasible to use plastics, Monsanto Chemical Co. did so in its new 3 story building near St. Louis, Mo., to demonstrate the possibilities of these new materials in construction.**

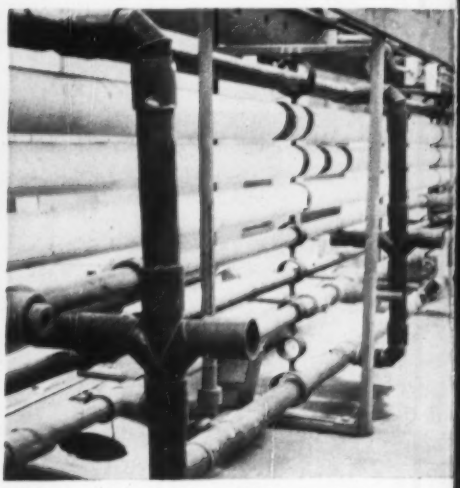
More than 80 different applications of plastics can be found in the 3 story research building just completed in suburban St. Louis for the Inorganic Chemicals Division, Monsanto Chemical Co.

One of the nation's largest producers of plastics raw materials, Monsanto instructed the designers to make extensive use of plastics, as a demonstration of what can be done with these materials in construction within the framework

**PARTITIONS** in laboratory are a translucent reinforced polyester.



**WINDOWS** made of acrylic plastic are louver-like in appearance. Upper side of serrations are coated to keep out sun. Walls (right) are polyester sandwich panels.



**PIPING** in labs is mainly PVC. Insulated lines shown are of metal, though.

# Built Almost Completely of Plastics

of conventional building practices and existing data. No attempt was made to employ plastics in a radical manner as was done in Monsanto's House of the Future, completed this month in Disneyland, Calif. (See page 28.)

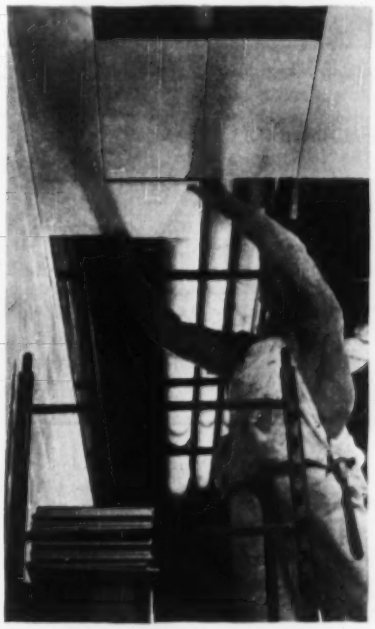
The laboratory building, with about 70,000 sq ft of floor area, is of reinforced concrete construction. It contains 40 chemical research units or modules, a special section for chemical engineering research, offices, library and service facilities. The research modules are about 12 ft wide and 40 ft long.

• **Plastic sandwiches**—Exterior walls were built mainly with reinforced-polyester-faced concrete block and 4 ft wide sandwich panels. The latter have reinforced polyester facings and foamed-styrene insulation core.

Many of the windows, louver-like in appearance, are made of a transparent acrylic plastic, fabricated with horizontal serrations, the upper sides of which are coated to limit entry of sunlight. Their cost is comparable to plate glass plus venetian blinds, but they are expected to require no maintenance.

Foamed-styrene sandwich panels form the roof over the engineering section Polyethylene film was used under concrete floors on earth for waterproofing and on top of concrete slabs for curing them. A vinyl film was sprayed on foundation walls for waterproofing.

**PAINT** applied to steel beam is urethane based, matches color of PVC pipe.



**ACOUSTIC TILE** installed in suspended ceiling is plastic-faced.

**SEALER** for acrylic windows of plastic adhesive is applied from a roll.

**EXTERIOR WALL** is faced with concrete block coated with colored reinforced polyester. The blocks are laid in conventional manner.

**ROOF DECK** is made of foamed-styrene plank 2-in. thick. →

**MEMBRANE** of polyethylene was laid on grade as waterproofing before the concrete basement floor was placed. The film withstands rough treatment.

• **Plastic-coated forms**—The contractor reports satisfactory results with phenolic-coated plywood for forms, which he bought for 15.5¢ per sq ft more than for standard plywood forms. He was able to use the plastic-coated plywood an average of 15 times and thus figures his extra cost for material at only 1¢ per sq ft.

However, because of the excellent finish imparted to the underside of the slabs, the contractor estimates he saved more than 10¢ per sq ft in labor costs for rubbing and finishing. The smooth ceilings were painted—with plastic-based paint, of course—eliminating the need for plaster.

• **Load-carrying application**—Laminated polyester and urethane foam form the structural support for a canopy at the front entrance. The canopy itself will consist of an aluminum honeycomb sandwiched between polyester facings.

In the interior of the building, polyester is used extensively for partitions, lab hoods and sinks. Much of the piping is polyvinyl chloride (PVC). And sewer drains are made of phenolic resin.

• **Plastics everywhere**—Among new uses of plastics to be found in this building are urethane corrosion-resistant structural steel paint, polyester molded exhaust fans, urethane-based paints on exposed concrete floors, polyester control dampers on lab hoods, polyester closing strips on mullions and vinyl-foam insulation in the constant-temperature room.

Included in the novel uses for conventional plastic materials are phenolic-impregnated honeycomb panels with polyester facings for stair rails, styrene plastic wall tile, polyester vent stacks, transparent plastic doors at front entrance and library, styrene latex-based paints and a vinyl diffuser in a translighted ceiling of metal-channel construction that reduces sharp lines at suspension points.

The laboratory also contains a host of conventional applications of conventional plastic materials not already mentioned. Among them are polyester-faced ceiling tile, vinyl wall covering, styrene wall tile, melamine wall laminates, vinyl folding partitions, acrilan

# An Architect's View of Plastics

**B. H. Bradley**

**Holabird & Root & Burgee**

**Chicago, Ill.**

The decision to employ plastics in as many areas as possible of Monsanto's Inorganic Division Research and Engineering Laboratory necessitated an educational program for the architects in the plastics field, and one for the associated plastics group in the building field. They had to investigate sources, costs, delivery dates (at least estimates of them where new uses were involved) and shop and site fabrication.

Several applications, of course, were well known at the time. A discreet use of these was essential, since they already were well accepted in the building field.

But much was unknown to the architects in the field of plastic insulation, roofing, flashing, calking, extrusions, piping, hardware, paints and particularly potential structural applications. Physical properties had to be translated from chemical terminology to shear, bearing, deflection, expansion and contraction, compression, tension, etc. Tests had to be conducted on vapor penetration, delamination (of the exterior panel), color fading and all elements of product stress that are normally found in building construction. Details of panels, hardware, etc., had to be developed to conform to both field and shop construction and fabrication.

In addition, it was necessary to investigate code requirements and insurance rates and to insure safe practice where codes did not fully cover particular conditions.

We have either learned or have had confirmed the following basic considerations in the development of this project:

Through infinite variety in color and texture, surface design is unlimited in plastics. At present, this is particularly true of interiors where weathering is not a factor.

Light control is possible in many variations.

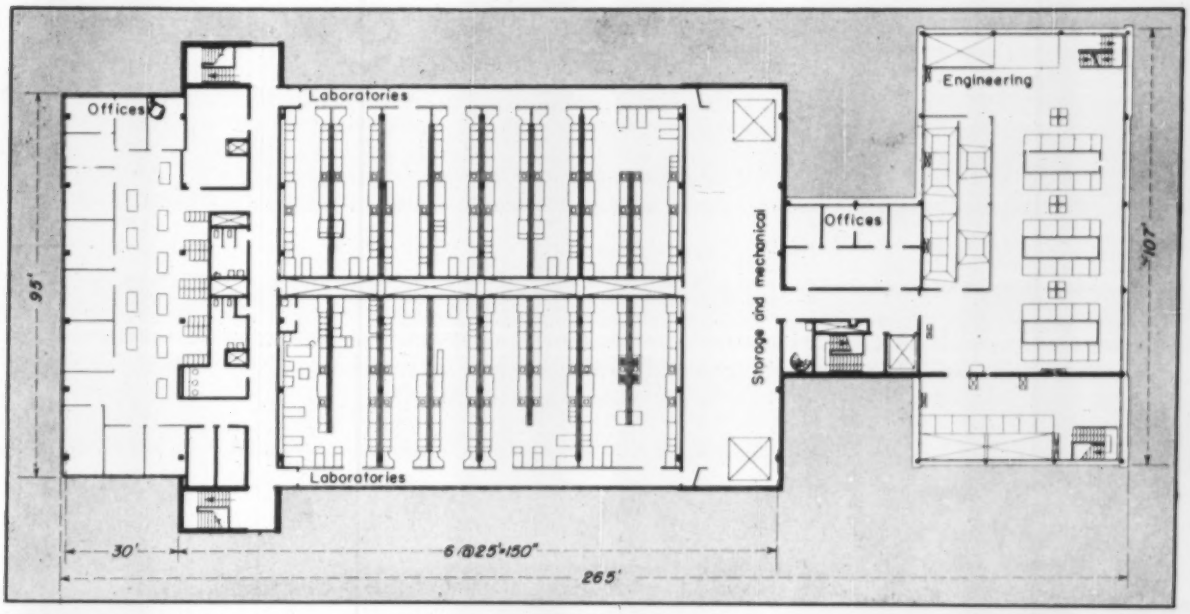
Self-supporting dividing elements (wall panels, sectional partitions) are now being given considerable study but do not as yet have sufficient background for immediate acceptance. It is our opinion that this is probably one of the most important areas for concentrated development. The day is rapidly approaching when we will have single, large exterior panels (floor to ceiling or larger) with self-contained vision areas where needed, variable degrees of insulation where needed and a minimum number of supporting or dividing members required, with their complexity of seals, drips, etc.

Conventional materials with plastic surfacing, such as the polyester-faced block, or panelling with melamine surfaces, certainly offer the most immediate large field.

Piping and mechanical and electrical equipment have previously been specified only in small areas with specific requirements. We now have learned that other characteristics, such as ease of job pipe assembly, make plastics advantageous in many additional areas.

Actual structural-framing members and floor and roof panels would require today extensive hand fabrication. Strength characteristics (per pound) are of such interest that future use of reinforced polyesters, or their equivalent, is inevitable. We hope to learn much from a study of the structural "bent" that will support the entrance canopy.

Miscellaneous items, such as door knobs, nylon hardware bearing sur-




**MODULAR LAYOUT** of laboratories is indicated on the plan of the second floor. Partitions around modules are made of plastics.

carpet, vinyl-asbestos floor tile, calking compounds and adhesives, phenolic door knobs, styrene or vinyl kick and push plates, melamine-laminate and resin-bonded asbestos-cement lab bench tops and palyethylene sinks. Much lab equipment is also made of plastics.

Holabird & Root & Burgee, of Chicago, were the architects. William H. and Nelson Cunliff Co., St. Louis, was the general contractor. H. R. Tumin is project design engineer for Monsanto, and M. F. Gigliotti, is manager of structural plastics engineering, in Monsanto's Plastic Division.

faces, paints, etc., offered few problems, since their development has been extensive. Extruded glazing beads, stops, moldings, etc., have many advantages and should continue to have strong growth in the building field. This is also true of roof insulation, roofing and flashing.

In conclusion, the position of the architect with his normal client should be stressed. Where the architect is not specifically requested to employ plastics in many ways, he must justify to his client the selection of all materials. This, then, is the competition of the plastics industry in the building field, rather than just the selection of one plastic over another.

# A Contractor's View of Plastics

**William H. Cunliff**

President
William H. and Nelson Cunliff Co.
St. Louis, Mo.

In this laboratory building, we have used more than 80 different plastic materials. Some of them have been in general use for several years; others are of recent development.

Such materials as wall panels and plastic-faced blocks were tested thoroughly for use in this building. Others had been tested critically in actual installations. Most of them are very satisfactory. Two or three of the materials need further research to reduce their cost before they can be used in competition with other building products.

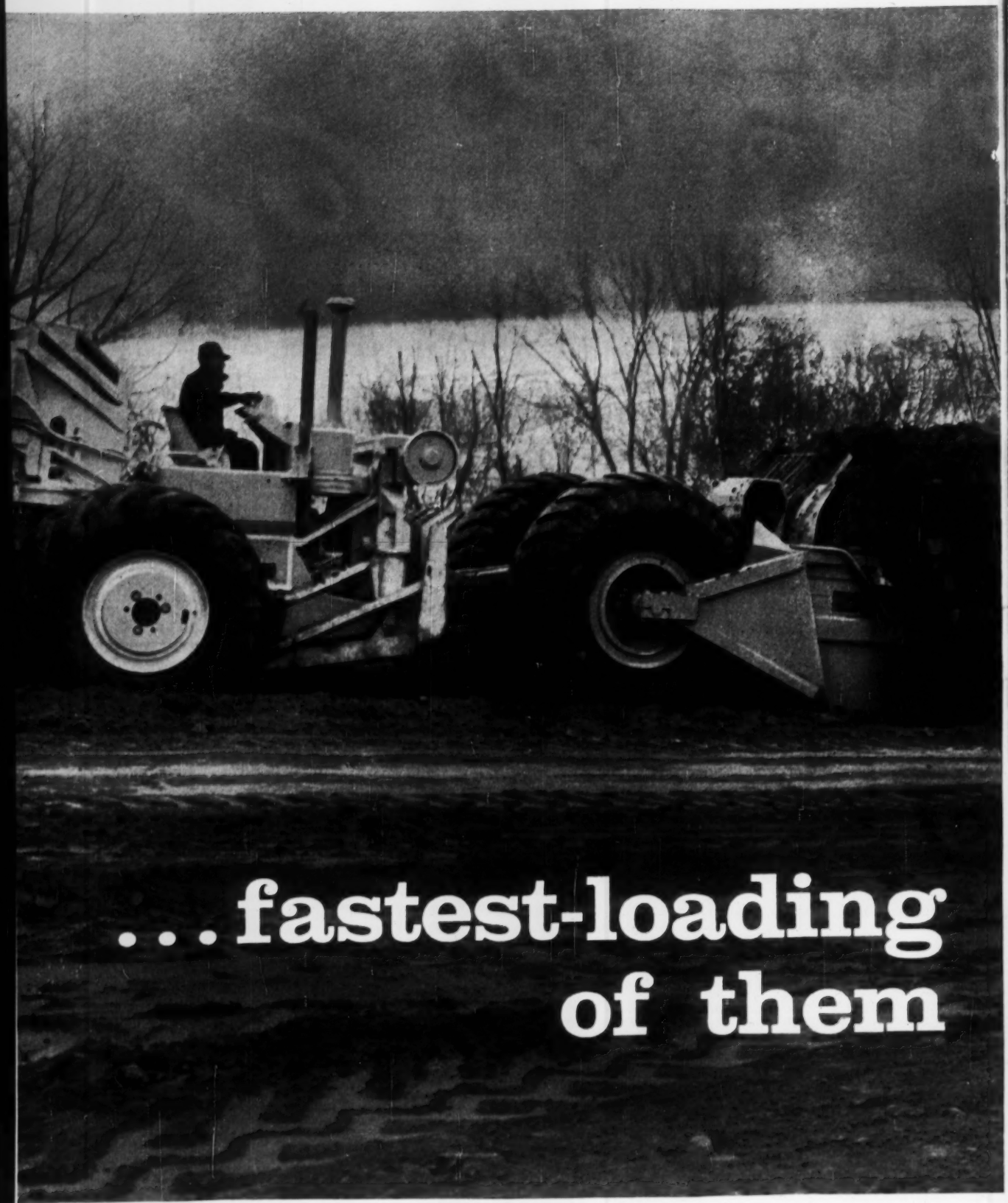
The concrete blocks faced with baked-on polyester-silica glazing, employed for the exterior walls, are not only economical but very effective in appearance. Their cost in place is less than that of face brick. These blocks are also used to excellent advantage for some interior walls and are more economical than glazed or ceramic tile.

The lightness, economy and ease of assembly of PVC pipe assures a great future for this product.

We have had our usual excellent cooperation from the various trade-union representatives. In every case, jurisdictional questions as to which trade should install the new materials have been resolved without even a threat of work stoppage.

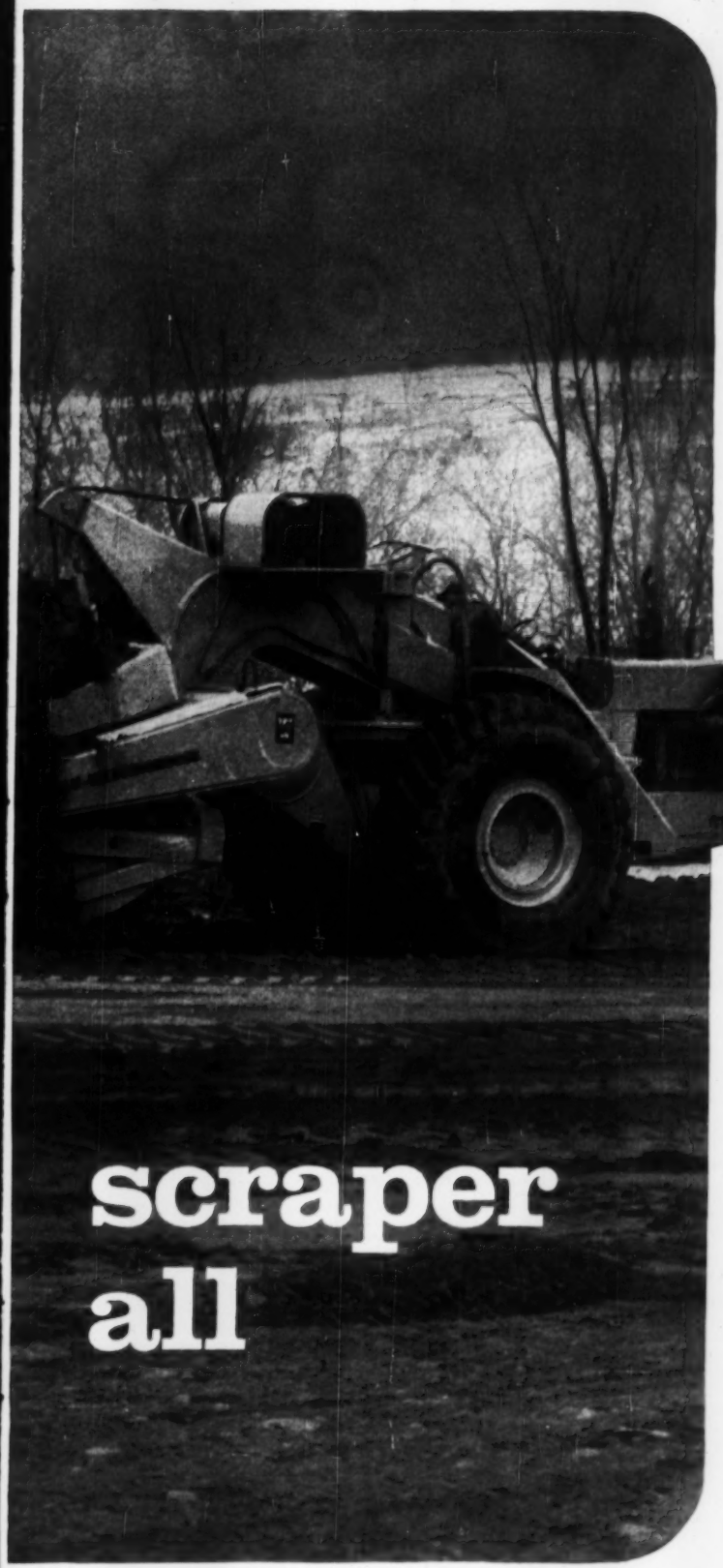
Although many of the plastic materials were new and hard to get at the time, construction, which was started in Jan., 1956, has progressed exactly as planned, with completion scheduled this June. Our labor costs have been much less than we anticipated in our original estimate for the installation of plastic materials, and we have effected substantial savings for Monsanto. In this connection, we have had excellent cooperation from the architects and from the engineering department of Monsanto's Inorganic Division and particularly from Norman Smithson, their project engineer.

The construction industry looks forward with great anticipation to the development of practical, labor-saving plastic products, such as the polyester canopy and the lightweight styrene foam insulating slabs, weighing only ¼ lb per sq ft of 2 in. thick slab. We see a great future for structural reinforced plastics, taking the place of bulky concrete, brick and mortor, or heavy steels and corroding metals in modern buildings.



# . . . fastest-loading of them

advertisement



# scraper all

## ...the new 27-yard FULLPAK*

## with new 293 hp B Tournapull®

**New low-and-wide scraper design**

**More pay-yards with same pusher-power**

**Top money-maker for contractors having big yardages to move in a hurry**

Pushed by 420 hp Twin-C* tractor, the BIG "B" bites into half-frozen, hard-packed clay for a heaped capacity load. Direct-line thrust from pusher to cutting edge of Full-pak low-and-wide bowl gets big loads fast.

*Trademark

—turn page for more on fast-loading "B"

— more on fast-loading "B"

# Why BIG B TOURNAPULL®

## is your fastest-loading scraper

Instant, positive action of exclusive fingertip electric control is free of trouble caused by worn clutches, long cables, sloppy linkage, and leaky valves. Control is fast, weatherproof. Generator produces full power only when the demand for extra power is needed.

Exclusive LeTourneau-Westinghouse power-transfer differential . . . automatically diverts power to wheel on firmest footing when opposite wheel starts to slip. The BIG "B" keeps on working when other rigs bog down.

Low, wide, Fullpak bowl gets *big* loads *fast!* This tested design was introduced on the 18-yd. Model C Tournapull . . . has been in world-wide service for more than a year. This companion 27-yd. B Fullpak has the same easy-loading characteristics as the 18-yd. "C". You'll find it the fastest-loading scraper in the business!

High lift apron opens 7'1" to speed loading and unloading. Deflectors on yoke arms, and streamlined apron side-arms prevent trapping rocks and other chunky materials that might impede operations and involve manual cleaning. Positive forward ejection of load by snug-fitting tailgate wipes bowl clean of sticky materials in a single pass.

# with 27-yard FULLPAK*
## for big-yardage earthmoving...

90° turning ability permits the BIG "B" to turn around in 39'10" . . . a space less than its own length. Makes it possible to work in confined areas . . . swing prime-mover side-to-side in soft going, to "walk" machine out of mud and sand.

Low yoke, high seat, give operator clear view of load and pusher. He can position his machine for faster contact and closer coordination with pusher . . . see the load, and control depth of cut for faster loading . . . see signal for quick break-away the moment load is heaped.

Tailgate is curved at top to roll material onto the heap, fill all corners. Curved apron carries a big part of load forward in its "belly", provides better weight distribution, lower center of gravity, improved stability in borrow pit or cut, and on haul-road or fill.

Low push-block gives direct-line application of power from pusher to blade. Bowl bottom has only 1° rise, permits nearly horizontal flow of dirt, packs in big loads *fast* with lively boil.

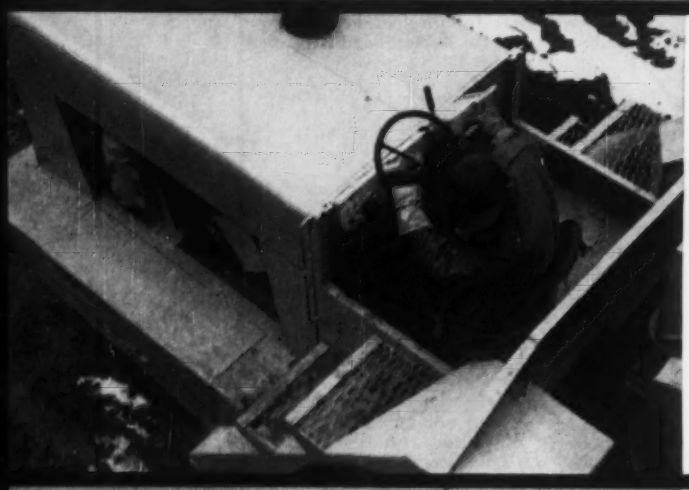
You get more pay-yards with the same push-power needed for 18 to 25-yd. scrapers. Because of its easy-loading advantages, the big 293 hp, 27-yard "B" gets heaped loads, in record time, without need for tandem pushers. This saves man-hours and pusher costs. Shown here is the 420 hp LeTourneau-Westinghouse Twin-C*, pushing the "B" for a 27-yard heap in less than a minute.

*Trademark

— turn page for more on new fast-loading "B"

— more on fast-loading "B"

# Put these FAST-LOADING advantages of BIG B Tournapull® to work for you



## Sit at the controls of the new BIG "B" . . .

Look ahead . . . you will notice you are sitting high . . . you can see where you're going, guide the big machine easily along narrow haul-roads, in the pit, on fill, and over rough terrain. You sit comfortably on a deep foam rubber cushion, lean against padded, posture-curved back. Seat may be adjusted 4 ways, for greatest comfort. Your left hand on power steering wheel, your right hand resting on rail over electric control switches, and you are the confident master of the top money-making scraper in its field!

## See how fast the new FULLPAK* Scraper loads . . .

Turn your head to the left and look down at the 10' wide cutting edge of Fullpak's bowl. As the bowl is lowered to cutting position notice how the dirt flows into the pan horizontally . . . gains momentum as it strikes the tailgate . . . boils up and forward with fast and lively action. Then look beyond the scraper to the push-tractor. You will see what we mean by "direct-line-push" . . . the power of the pusher is applied from push-plate to scraper cutting edge in a direct line . . . for maximum "push" when loading.

## See how load heaps to fill all corners . . .

Watch the dirt as it leaves the curved top of the tailgate and arcs forward to pile up on the apron and fill all corners of the pan. The action is fast! In ordinary material the Fullpak gets its heaped load in less than a minute. And you will notice how the crowned sides of the bowl hold a bigger heap . . . reduce spillage to a minimum. Notice, also, how the load is carried well forward in the bowl, for better weight distribution and greater stability when the big machine hits the haul-road and heads for the fill at speeds to 28 mph.

## See how positive-action tailgate wipes bowl clean

Touch a fingertip switch, then watch Fullpak's positive-action tailgate move forward to eject the load. See how it wipes the bowl clean of mud, marl, or sticky clay in a single pass. No "carry-backs" here . . . the bowl is left clean. And you will notice that the inside of the bowl is cleanly designed, with no angular obstructions to block material flow. Operation of the tailgate is smooth, positive, efficient, and dependable.

# Use BIG B Tournapull prime-mover with Rear-Dump or Lift-and-Carry Crane

When your work runs into blasted rock, or other shovel-loaded materials, you can interchange your Fullpak Scraper with a 35-ton "B" Rear-Dump . . . keep your Tournapull prime-mover working with no time lost. The "B" Rear-Dump is highly maneuverable . . . makes 180° turns in less than its overall length, offers a big target for dragline or shovel, makes over-the-edge dumps clean and safe. Tournapull Rear-Dumps are at work all over the world. You will find them profitable tools to include in your equipment spread.

You can further extend the work-capacity of your "B" prime-mover with a Tournapull Lift-and-Carry Crane. Use it to handle pipe, culverts, bridge steel, pre-cast concrete sections, heavy machinery, and parts. Use it to unload trucks and rail cars. "B" Crane has a capacity of 30 tons; maximum lift, 24'9"; reach, 25'.

These LeTourneau-Westinghouse trailing units may be interchanged quickly and easily with the Fullpak Scraper. Each may be purchased at about one-third the original cost of scraper and prime-mover. Ask for complete details.

## Complete more work in less time... make more profits

If your work includes big-yardage contracts, you can use a fleet of BIG B Tournapulls, with new 27-yd. Fullpak Scrapers, for bigger production and bigger profits. Next time you have a big-volume job to figure, call in your LeTourneau-Westinghouse Distributor and let him help you determine the ownership-operating cost of a BIG "B". Then compare it with your present equipment. On yard-for-yard production, you will find it your top money-maker.

Make this comparison soon! It is necessary that you act promptly if you want delivery in time to meet early job completion dates. 'Phone or wire . . . let us give you complete facts and specifications.

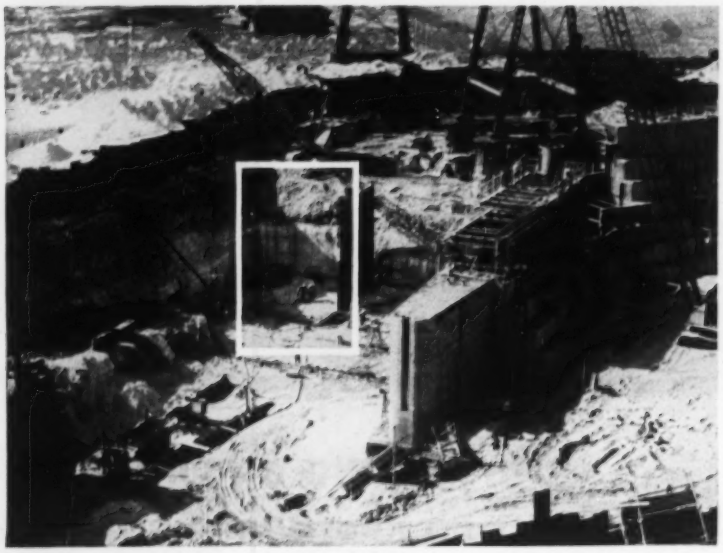
*Trademark BP-1439-O

**LeTourneau-WESTINGHOUSE Company,** PEORIA, ILLINOIS

*A Subsidiary of Westinghouse Air Brake Company*

**Where quality is a habit**

"DEWATER SANDSTONE WITH WELLPOINTS? *IT CAN'T BE DONE!"*



## "STANG *DID IT!"*

Holding back the mighty Mississippi is a king-sized job anytime, but it posed a particularly tough problem on the St. Anthony Falls Lock and Dam project.

The job called for dewatering and support of a crumbly, porous sandstone material on the very edge of the river and immediately adjacent to the cellular cofferdam. The prime contractors Johnson-Kiewit, together with the U.S. Army Engineers supervising the project, made a daring decision. They called for Stang wellpoints to eliminate the serious piping which developed from the river, under the cellular cofferdam and on into the excavation area.

*They banked on Stang's versatility and it paid off.* The wellpoint installation was highly successful; not only eliminating the piping condition, but actually lowering the water table below the deepest subgrades.

Call on STANG engineers for experienced services and special equipment to solve your water handling problems—any size, any type, *anywhere!* STANG engineers are on call in your area for consultation day or night.

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572

*Putting water in its place ...anyplace!*

# Building an All-Concrete Food Terminal

A food terminal for the Southern Railway at Chattanooga, Tenn., comprising six 1 story buildings, is being constructed largely of prestressed and precast concrete.

Providing all told over 300,000 sq ft of floor area, five of the buildings are enclosed with tilt-up wall panels and the sixth with masonry.

To reduce haulage of precast sections, the casting beds were set up alongside the buildings where the sections were to be used. In this way, the longest haul was cut to about 1,000 ft.

Footings for the buildings varied in depth from 8 to 25 ft. They were bored and belled out to penetrate an overburden of cinders and other fill of low or questionable value.

Grade beams and foundation walls were concreted in place. Floor slabs of 4 in. thick reinforced concrete were laid 4 ft above ground level, on fill, to facilitate truck loading. Fill under the floor slabs is a mixture of cinders, sand and clay.

The tilt-up walls are of 5 in. thick reinforced concrete. They were formed using the floor slabs as casting surfaces. Reinforcing steel in the wall panels was reduced by increasing allowable design stresses, since the maximum stress experienced by the slabs would occur only momentarily when the slab was lifted into place.

Exterior columns were cast in place after the wall panels were erected. Interior columns, longest of which was 27 ft, were precast with base plates and anchored to foundation piers after erection.

The roof system in four of the largest buildings is carried on prestressed concrete girders of inverted T shape. For the entire job, 227 beams were cast and then post-tensioned.

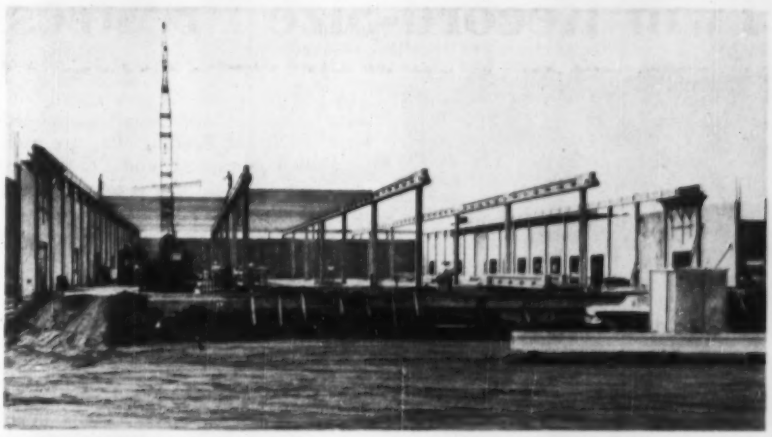
Heaviest girder weighed 17 tons. Typical girder span is about 55 ft between columns. Of hung-span construction the girders were cantilevered 10 ft beyond columns to reduce moments. Drop-in beams, 35 ft long, were placed between the cantilevered sections.

The roof deck is composed of 8 ft long precast channel planks. It is supported on precast joists 22 to 34 ft long.

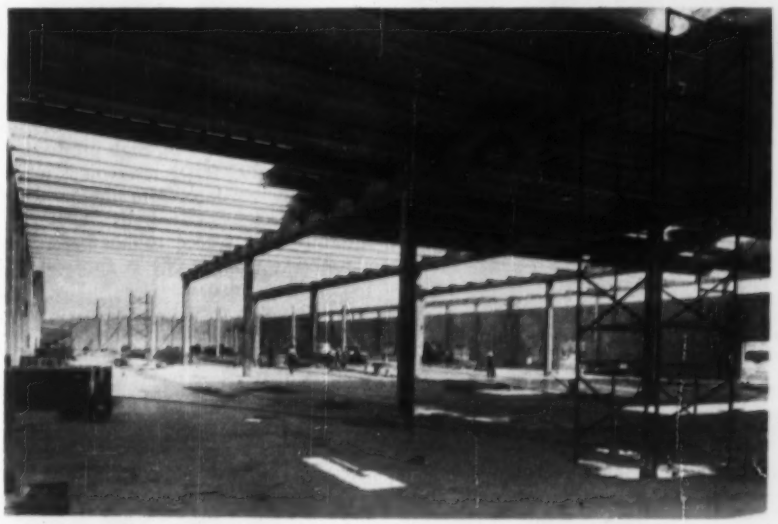
Work was started on the project in March, 1956, and completed in April, 1957. Simmerson & Bell were the engineers and S. S. Jacobson was general contractor.

Structural frame of the cold storage building is contained within the insulation enclosing the building to save jacketing of columns for structural connections through the insulation.

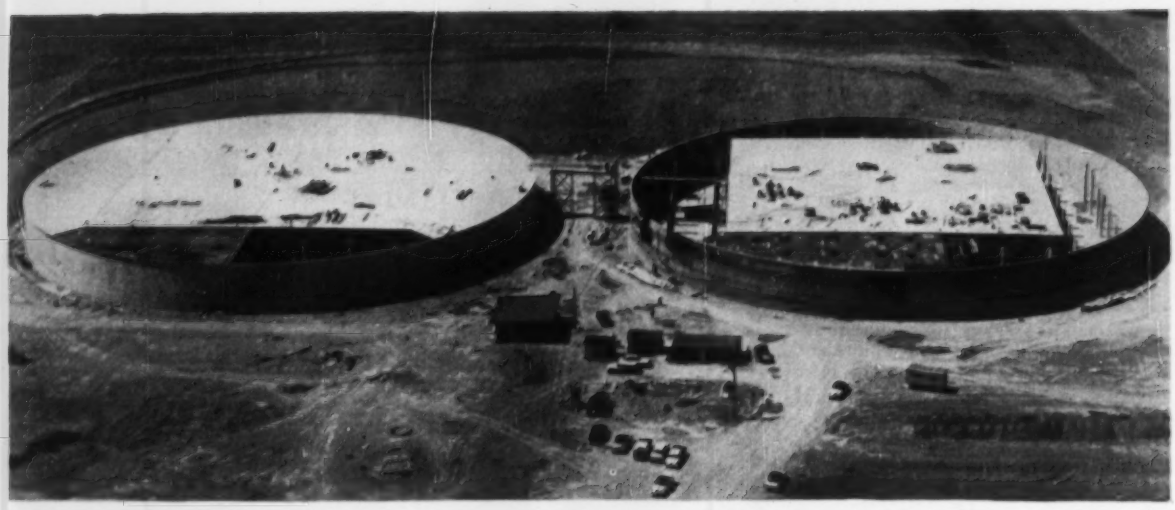
**PRESTRESSING BEDS** at the food terminal in Chattanooga, Tenn., were set up alongside the building where the precast sections were to be used.



**STRUCTURAL FRAMES** for the buildings were made up of precast columns and prestressed girders. Exterior columns were cast in place after the tiltup walls were erected.

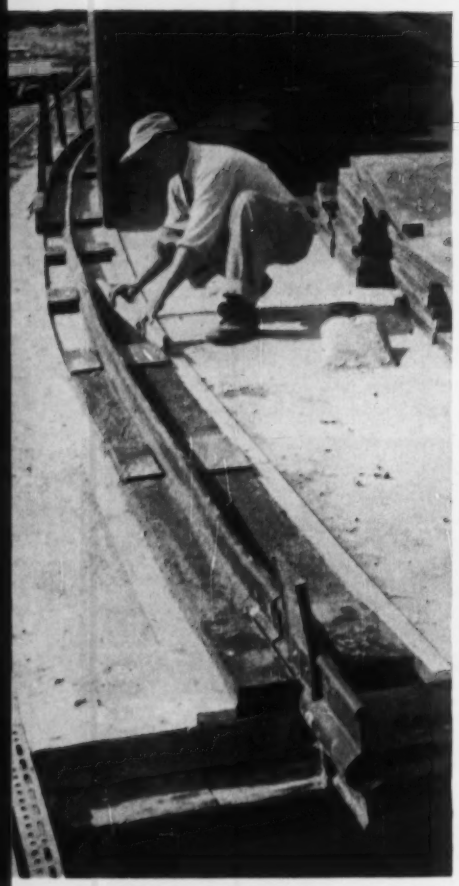


**PRECAST CHANNEL PLANKS** making up the roof deck are supported on precast joists. Prestressed girders are of hung-span construction.



At 13 mg, 292 ft dia each, Reading, Pa., gets . . .

# Twin Record-Size Prestressed Tanks



**FLOATING SHELL**—Rubber pads on both sides of wall-base waterstop will "float" wall. Ground-slab, wall-base and vertical-section joint waterstops are spliced together to give watertight system.

A pair of record-size prestressed concrete reservoirs now being completed for the City of Reading, Pa., are each 13 million gal capacity and 292 ft diameter—and 10% cheaper to build than a reinforced concrete alternate.

Low bids for both the reinforced concrete and the prestressed concrete alternate were entered by the same contractor, B. F. Ziegler, general contractors of Hazelton, Pa. His bid for the first was $738,200. And his bid for the second—based on a design prepared by The Preload Co., Inc., New York—won at $678,200. (This figure does not include excavation and pumphouse construction which brought total bid up to $913,785.) In all, the Preload design attracted the best bid of three alternates—steel being the third—from the five lowest bidders out of a total of 13 bidders.

• **Floating design**—The concrete of the 13 in. thick, 27 ft 4 in. high prestressed wall of the 292 ft ID reservoir is made completely separate from the base on which it rests. The walls "float" on intermittently placed rubber pads, and a rubber waterstop effects the seal between wall and base.

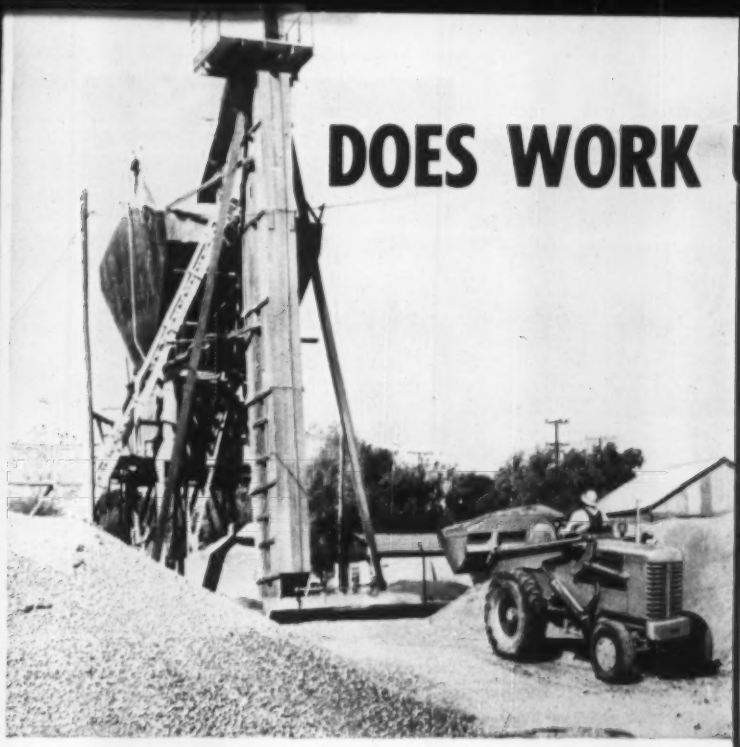
This design, used successfully by Preload for many years, results in a reduced edge restraint of the cylindrical shell so that stress from vertical bending moments are low. The wall is relatively free to move inward and outward approximately 1 in. under external prestressing and internal water load.

The roof of the reservoir is a cast-in-place flat slab 8 in. thick and supported by 120 cast-in-place concrete columns spaced approximately 25 ft on centers. The 8 in. thick floor slab is also cast in place in four quadrants with expansion joints separating them.

• **Placing the wall**—When the floor slabs were cast, atop footing along the rim, one edge of a 9 in. rubber waterstop of the dumbell type, with 2¾ in. dia hollow bulb in the center, was bonded in the concrete. With the upper edge later embedded in the tank wall, the waterstop makes a continuous, flexible watertight bond all around the base circumference of the tank.

Rubber pads, 2 in. thick and 5x12 in., are placed 4 ft on centers on both

**RESERVOIR WALL** was placed in eight sections running full height of 27 ft 4 in. high wall, eliminating horizontal construction joints. Columns are cast-in-place to hold flat-slab roof for tank.



# DOES WORK USUALLY HANDLED BY CLAMSHELL

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**HOW IT'S DONE** At left is over-all view of bucket elevator with a two-compartment overhead bin — one for sand, one for gravel. At the base of elevator is a ground level hopper which is kept filled by the TL-11 TRACTO-LOADER (below).

Operator said he likes the stability of the TL-11—carries heaping loads without rocking. In the TL-11, you get the long wheel base and strong construction of the 4-wheel drive TL-12 TRACTO-LOADER . . . plus the short turning radius of the 2-wheel drive TL-10.

versatile

## TRACTOMOTIVE TL-11 TRACTOLOADER®

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No big, expensive, single-purpose machines for Ready-Mix Concrete, Muskogee, Oklahoma. Its low-cost TRACTO-LOADER keeps the bins well-supplied with sand and gravel . . . and fills in "waiting periods" by doing other jobs — transports concrete pipe, reinforcing wire and rods, concrete block . . . loads cinders . . . does general yard cleanup work.

Equipment that keeps producing all day, every day, keeps your income up, your costs down. Ask your Allis-Chalmers construction machinery dealer to show you the multi-purpose TRACTO-LOADERS. Choice of five models; gasoline and diesel.

**FLOOR WORKING AREA IS KEPT LEVEL** with the TL-11 because operator has hydraulic control of bucket — no digging below grade. Loads are heaped, too, because there is a scooping action with TIP-BACK BUCKET and smooth, positive crowding with HYDRAULIC TORQUE CONVERTER DRIVE.

**BUCKET CAPACITY:** 1⅛ cu yd
**BRAKE HP:** 63 (gasoline) 77 (diesel)
**SPEEDS:** 4 forward; up to 20 mph; 4 reverse up to 25 mph
**WEIGHT:** 11,300 lb (gasoline) 11,500 lb (diesel)

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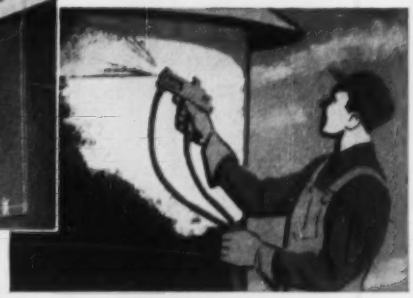
*All around the plant...*



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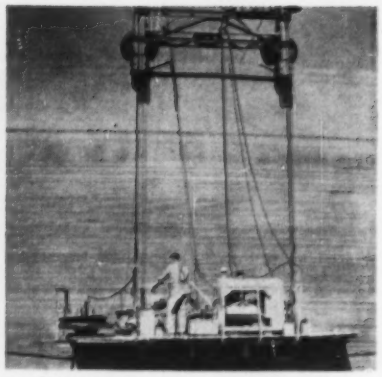
FLINTKOTE INDUSTRIAL PRODUCTS

# FLINTKOTE

**WIRE WINDER** applies circumferential prestressing wire in a continuous helix.

sides of the waterstop. The space between pads was filled to a depth of 1½ in. with sand, which was washed out when walls had set and before start of circumferential prestressing.

The contractor elected to place each reservoir wall in eight sections, of 126 cu yd of concrete each, to full wall height. The vertical wall construction joints are sealed with dumbell waterstops. This was also done with base slab joints. At junctions of wall-base, vertical and slab joints, the rubber waterstop is spliced to create a watertight system throughout.

Walls are vertically reinforced by 1⅛ in. stressed steel bars placed 6 ft on centers. Standard reinforcement on both faces of the wall supplements the vertical prestressed reinforcement.

• **The squeeze** — Circumferential prestressing of tank walls was able to proceed independently of roof construction. On one tank, the prestressing was completed before the peripheral sections of the roof slab had been cast. The second tank had the entire roof in place when prestressing was done.

Each tank took approximately 240 miles of circumferential prestressing wire which was applied by Preload's "merry-go-round" machine in a continuous helix at uniform tension.

The 0.192 in. dia wire used was stressed to 150,000 psi by passing it through a reducing die 0.172 in. in diameter. The circumferential wires are spaced 25 to the ft vertically per layer of wire. This permitted thorough protection of the steel with pneumatic mortar and thorough bonding of the coating to the core wall. Four layers of wire were required at the bottom of the wall, and each is covered with a ¼ in. coat of the pneumatic mortar. Final overcoat is ⅜ in. of the mortar.

Prestressing and mortar work took an average of seven weeks for each tank. The complete job, started late in 1955, is expected to be finished for Reading's bureau of water by this July.

# Use the **APPROVED** high strength bolts **for structural steel** connections

*RB&W quality confirmed by independent reports*

HERE'S more assurance that you can depend on the strength and quality of RB&W High Strength Bolts in structural steel connections:

The independent, nationally known New York Testing Laboratories, Inc., examined the way RB&W makes these fasteners, tested random samples. Their findings: (1) The bolts conform to ASTM A325 specifications. (2) RB&W methods and facilities assure this quality consistently.

On top of this, the Committee on Test of N.Y.C. Board of Standards and Appeals also observed the RB&W manufacturing process from receipt of raw material to finished bolt. As a result, *RB&W High Strength Bolts are now approved for buildings in New York City* without need for erectors to file for exceptions under the Code.

RB&W high tensile bolts assemble easily. Once tightened to recommended minimum tension, they *stay* tight. Stronger than rivets in shear and in tension, they can be used anywhere, under all types of loads. The AISC approves. So do local codes everywhere.

Send for Bulletin HS-1 "How to work with high strength bolts"—as many copies as you can use. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N.Y.

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**Plants at:** Port Chester, N.Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver. **Distributors** from coast to coast.

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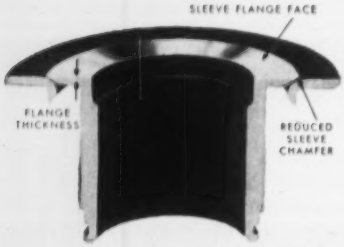
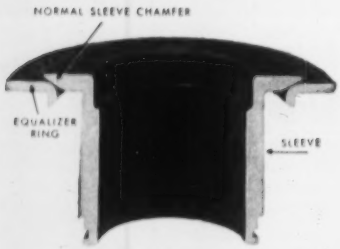
# Only LIPE Factory-Exchange Clutches* are built the same as NEW Lipe Clutches

**In Field-Rebuilt Clutch Sleeves All That Shines is Not New**




**SHINY CONTACT FACE** on re-ground clutch sleeve indicates unprotected soft iron surface.




**NEW LIPE CLUTCH** sleeve easily identified by dark color resulting from rugged .007" case hardening and protective surface coating.

*Every Lipe Factory-Exchange Clutch is tagged and sealed at the factory — your guarantee of genuine Lipe parts and craftsmanship.*

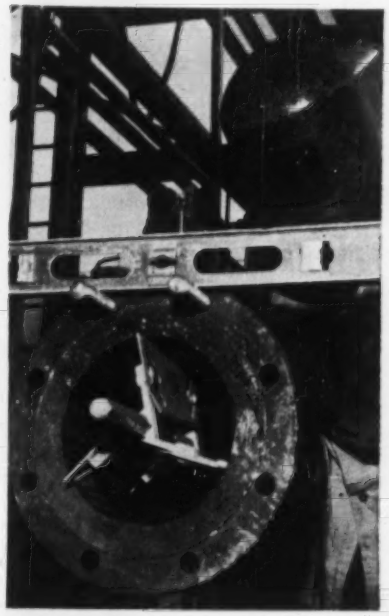
Ordinary clutch rebuilders just don't have the resources or the expensive equipment needed to recondition clutches the Lipe quality way. Some rebuilders even use unskilled labor, too few new parts and inadequate inspection methods: Practices that naturally lower the quality of the rebuilt clutch and shorten its service life.

At left is a typical example of inadequate reconditioning. Instead of replacing, as Lipe does, a worn or scored clutch sleeve with a new one, the rebuilder re-grinds the surface down through the case hardening to the soft metal beneath. That means the sleeve will wear quickly, and cause serious damage to the throwout bearing and a high rate of destructive slippage — *all greatly reducing the life of the clutch.* Such an improperly rebuilt clutch tested recently showed a total direct pressure loss of 120 lbs.!

Slipshod reconditioning always costs more in the long run. It pays to get genuine Lipe Factory-Exchange Tagged and Sealed Clutches. Contact your nearby authorized Lipe jobber for quick exchange service.

Lipe-ROLLWAY CORPORATION SYRACUSE 1 N Y

***Manufacturers of Automotive Clutches and Machine Tools***



## Tool for Quick, Positive Line-Up of Pipe, Fitting

Quick and positive line-up of internal surfaces, by one man, is claimed for a new tool used to position weld neck flanges or stub-ends on pipe in preparation for welding.

A few turns of a mandrel brings three blades into contact with pipe and fitting, lining up and supporting the inside diameters. The tool can also be used as a centering device for grinding bevel on alloy tubing, says the maker.

Four sets will take care of pipe sizes from 3 in. to 20 in. LINE-O-TOOL CO., 1927 BANK OF THE SOUTHWEST, HOUSTON 2, TEX.

## Low-Cost Soil Compactor Features High Capacity

Weighing only 1½ tons, the new Terrapac model CK 10 vibratory soil compactor produces a 5 ton impact.

The heavy impact is due to a combination of vibratory frequency and high amplitude. The manufacturer explains that lower vibration frequencies mean less wear, sharply reducing maintenance.

Special shock absorbers isolate the drum from the frame so that no destructive vibration is transmitted to the engine or battery. The unit is said to be highly maneuverable, may be towed by the smallest rubber-tired tractor to within 1½ in. of walls, abutments, or other obstacles. VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J.

## Aeroil Brings Out a Line Of Heavy Duty Distributors

Aeroil Products Co., for a long time a major manufacturer of small distributors, has branched out into the heavy duty field.

Among its new products is a 1,250 gal bituminous distributor, which is said to apply the heaviest material through spray bars up to 24 ft long. The bar is said to heat fast because 250 or more gal of material per minute are circulated through it. The circulation system thus provides direct feed to nozzles all along the bar for balanced pressure. The bar as well as the piping system and pump can be drained with material going back into the tank and the system flushed out. AEROIL PRODUCTS CO., INC., SOUTH HACKENSACK, N. J.

## Batcher Weighs Cement, Aggregates at Same Time

Cement and aggregates are batched at the same time in the latest version of the Noble 240 ton batching plant.

Through a system of multiple scales, the batching cycle is completed faster and the plant can deliver 7 yd batches every 150 seconds, according to the manufacturer.

Either automatic or semi-automatic in operation, the factory assembled center section is complete with all batching components and controls and is housed

## Opaque Film Used for Curing Concrete Road

Contractors on the Dallas-Ft. Worth Turnpike are experimenting with an opaque white film made of Bakelite polyethylene for curing concrete sections, according to information released by Bakelite Co.

The white film plastic, in sheets 20 ft wide and .004 in. thick, was unrolled over the newly laid concrete. The contractor, Flenniken Construction Co. and L. H. Lacy Co. of Dallas, said that installation was much quicker than with stiff waterproof paper normally used, and that they found the film draped easily over the edges and fit snugly around cutouts for drains.

Sufficient film to cover 1,000 sq ft of highway weighs less than 20 lb and dirt is piled along the edges to keep the film from lifting in wind.

Advantages claimed for the white film include the fact that it reflects sunlight and allows less heat absorption. THE BAKELITE CO., DIV. OF UNION CARBIDE CORP., 260 MADISON AVE., NEW YORK 16, N. Y.

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in a rigid "A" frame. The 240 ton aggregate bins are available in from two to six compartments. The Noble Co., 1860 Seventh St., Oakland 20, Calif.

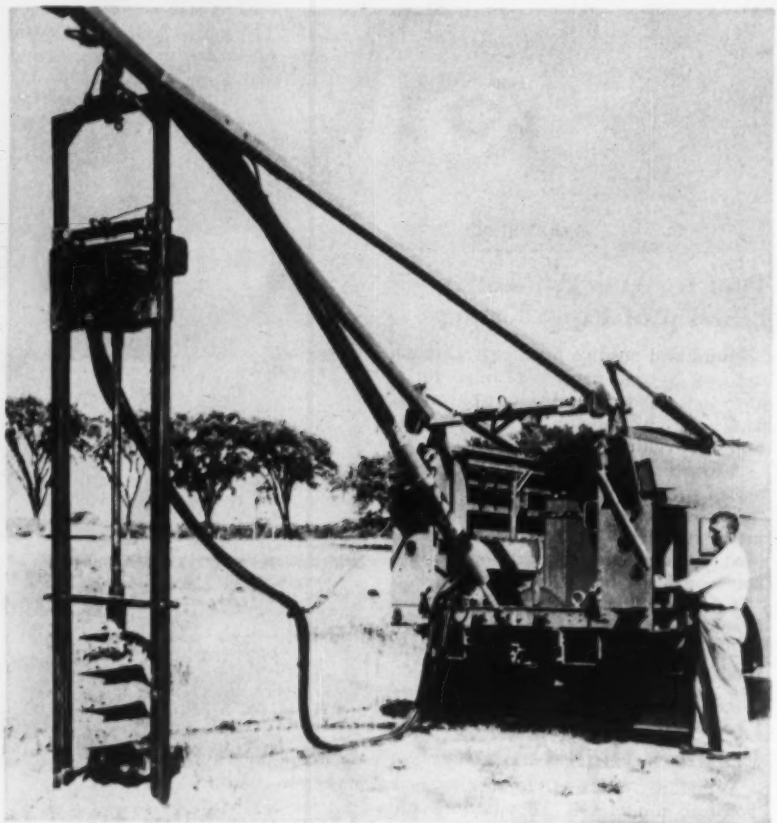
## Portable Pipe Rotators Facilitate Flame Cutting

Rotators for turning pipe and other cylindrical shapes for flame cutting or welding are equipped with one powered rotator and one idler rotator. Capacity of the unit is 1,500 lb total load, but more than one idler can be used to increase capacity.

Wheel centers on both power and idler units are fixed, requiring no adjustment on pipe sizes from 2 to 24 in. Known as the M-15 rotators, they are adaptable for either field or shop use.—Webb Corp., Webb City, Mo.

## Aluminum Drafting Bows

Three imported aluminum compasses are available for drawing circles up to 5, 10 and 14 in. in diameter. The head has extended handle through tempered hoop springs; shoulder and needle points are used as bow dividers. Alvin & Co., Windsor, Conn.



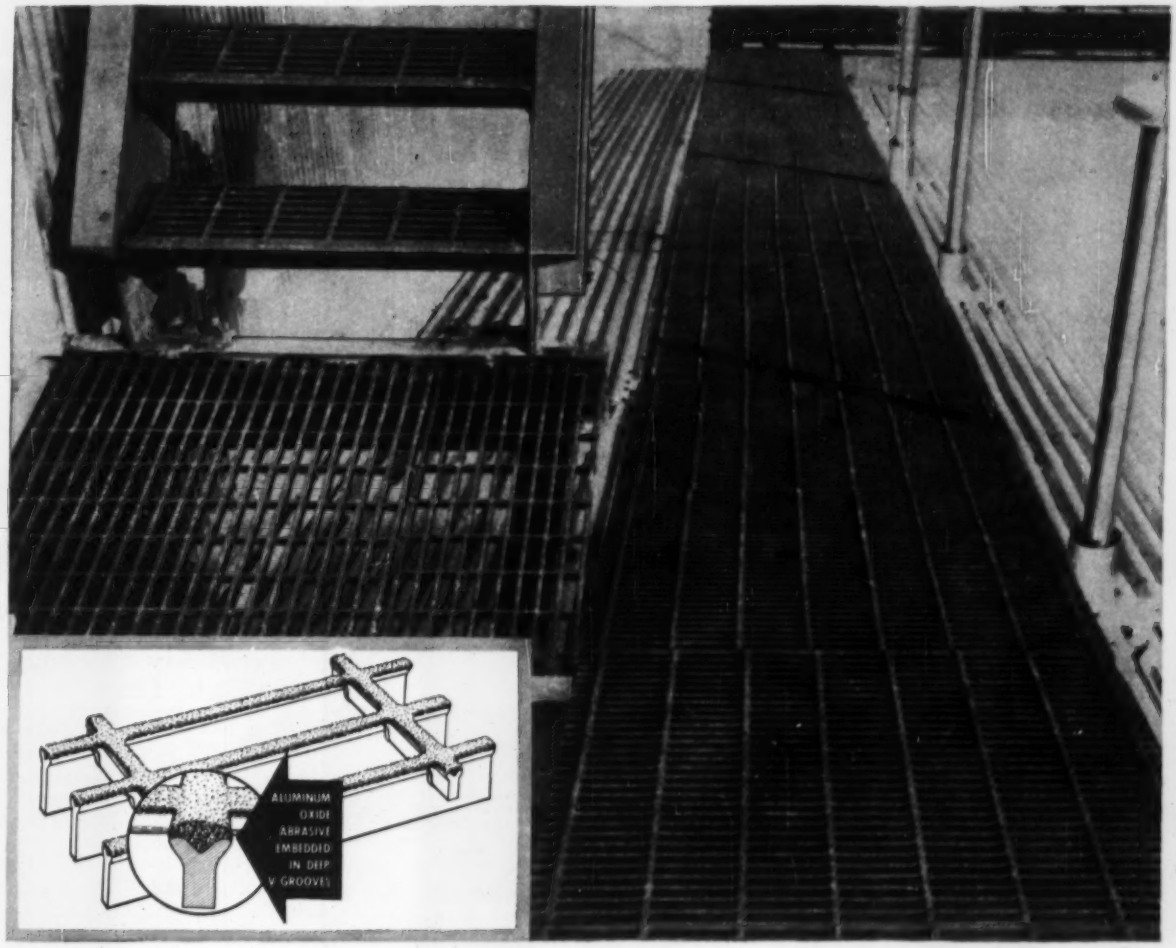
# Truck Borer Digs Wide and Deep

A suspended type hydraulic earth boring machine that is said to dig holes 11 to 22 in. in diameter and up to 7 ft deep is now in production.

Designated as the Model "B" digger, the machine can be front or rear mounted on any type of line construciton body, with any type of hydraulic derrick, the manufacturer says. It is claimed that the digger will cut through every type of soil including frost and hard sand. A drive chain crowd assembly assures rapid and smooth downward digging action, and the flight auger, featuring a hole-trimming blade, cuts a hole to the diameter desired for the pole being set.

The machine has two independent hydraulic motors to rotate the auger and power the feed mechanism. Highway Trailer Co., Edgerton, Wis.

(*New Products continued on page 76*)




# RELGRIT® provides safe footing on sharply sloping roofs at AEC St. Louis Plant

Reliance Relgrit gratings and treads are providing safe access to stacks, filters and other equipment across the 18° sloping roof of the AEC Feed Material Plant near St. Louis. The abrasive surface of Relgrit was picked as a truly non-skid surface for ramps, stairways and walks leading to equipment which had to be serviced frequently.

The top surfaces of the bearing bars have ⅛" deep V-grooves in which is embedded aluminum oxide abrasive grains in a hard resin. The material is not affected by water, oil, gasoline, greases, or the most commonly used acids, alkalis and other chemicals, which gives it a long service life under the most severe conditions. If you have operations in which the floors become oily, greasy, wet, or slick from any other cause, Relgrit can provide safe footing at very low cost. Write for complete information and samples.

*you can't slip on Relgrit*

## Reliance Steel Products Company

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*Relgrit Abrasive Gratings and Treads • Lightweight Bridge Flooring*
*Steel, Stainless and Aluminum Grating • Steel Mill Equipment*

"ORIENTED" DIAMOND CORING BIT

Available in four different matrices and three different grades of correctly-sized diamonds. EX, AX, BX and NX sizes carried in stock. Larger sizes and special designs furnished to meet any specifications or requirements.

# YOU REALLY SAVE MONEY

• • •

"M" SERIES "ORIENTED" DIAMOND CORING BIT

For use with "M" SERIES Core Barrel, when good cores must be secured from soft or friable strata. Available in all four types of matrix and three different grades of diamonds. Also in a complete range of impregnated sizes. EX, AX, BX and NX sizes carried in stock.

# WHEN YOU BUY OR SPECIFY

"ORIENTED" DIAMOND "TAPER" TYPE NON-CORING BIT

The fastest cutting bit for drilling blast holes in very hard formations. All standard sizes.

SPRAGUE & HENWOOD

## "ORIENTED" DIAMOND BITS

Developed with the co-operation of the United States Bureau of Mines, Sprague & Henwood "Oriented" Diamond Bits can really save you money . . . save it by giving you better performance, at a minimum of diamond loss.

If you have bits that need resetting, send them in, stating conditions under which they have been used. In most cases, they will be shipped back fully renewed with diamonds "Oriented" within 3 or 4 working days after we have received them. Suggestions and recommendations aimed at obtaining better results with your diamond bits will be made upon request.

*Send for complete "Oriented" story and New Diamond Bit Catalog #320-1 today.*

**SPRAGUE & HENWOOD, Inc.**
SCRANTON 2, PA.

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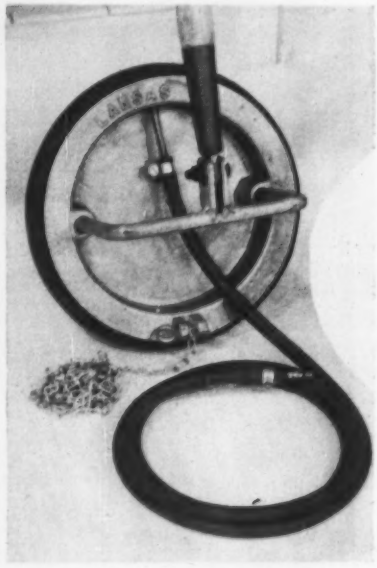
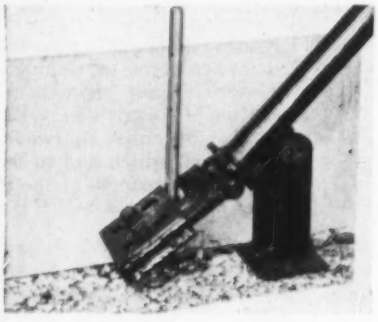


## New Rig Makes Splicing Slings Quick, Efficient

A new rig, now available, is said to be fast, efficient, and to make it possible for an average worker to handle cable splicing on varying sizes of slings.

The machine, known as the "Torque-master" wire rope splicer, uses a swivel action jaw assembly that is rotated against the lay of the cable to remove the initial torque and thus make it easy to run the end strands through the wire.

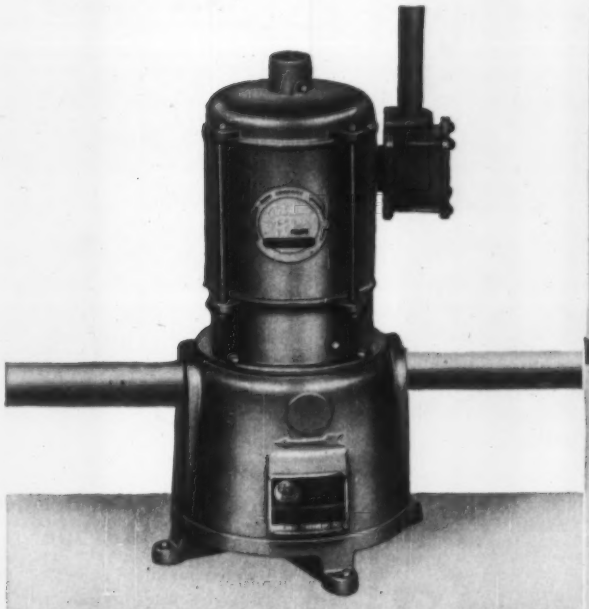
It is claimed that splicing time can be cut by as much as 50% by use of the machine, which can be mounted for either vertical or horizontal operation. QUAY INDUSTRIES, 2135 RIVERSIDE AVE., JACKSONVILLE 4, FLA.

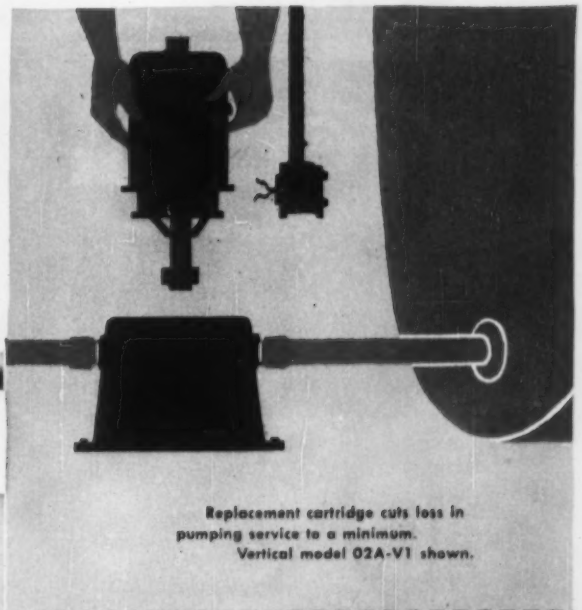


## Stake Puller

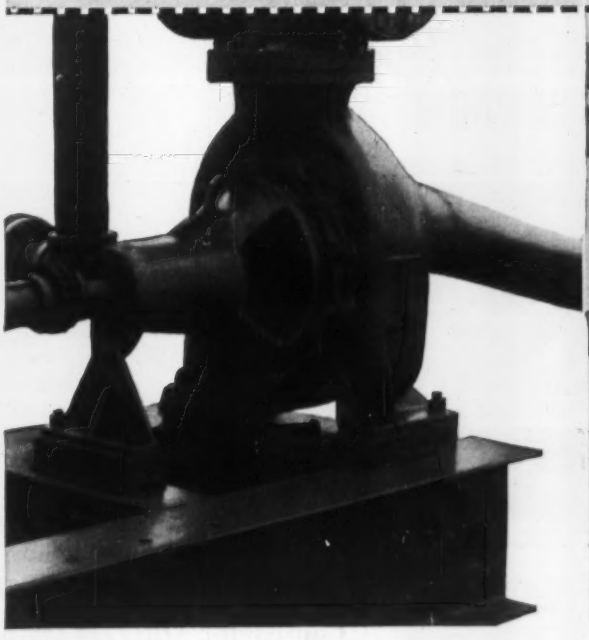
Designed to pull stakes quickly and easily without damaging, the new Universal Puller is adaptable to both wood and steel stakes.

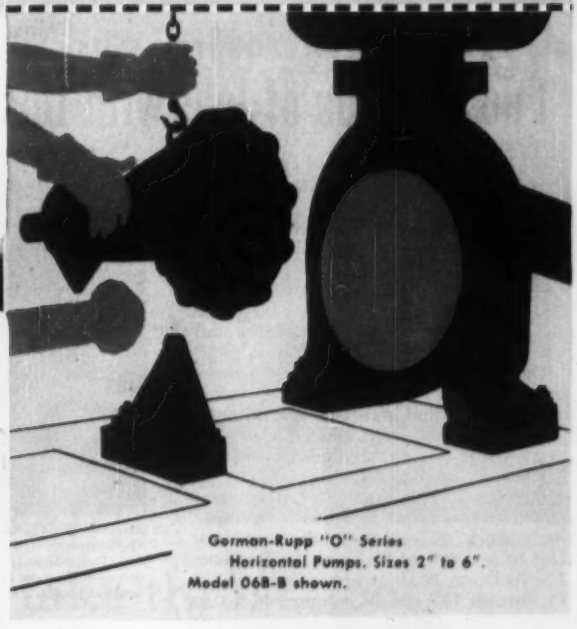
The adjustable plate on the jaw will





Replacement cartridge cuts loss in pumping service to a minimum. Vertical model 02A-V1 shown.





Gorman-Rupp "O" Series Horizontal Pumps. Sizes 2" to 6". Model 06B-B shown.

# DON'T BREAK THE PIPING!

*Gorman-Rupp's exclusive cartridge design* permits rapid field service with less man-hours and spillage control. No need to work back to a fitting or flange. Pump and motor can be removed and exchanged by unscrewing a few bolts right at the pump. This is an every-model feature for all Gorman-Rupp "O" Series *centrifugal pumps that prime*—noted for their high efficiency, dependable operation and unique safety features. No check valves. Covered by the Gorman-Rupp plain language guarantee.

## THE GORMAN-RUPP COMPANY

**305 Bowman Street · Mansfield, Ohio**

Schramm 125 Heavy Pneumatractor with Front End Loader and Backhoe. This unit can dig to a depth of 9'6" in widths of 12" to 36". One-yard loader bucket handles up to 2500 pounds. With Bucket and Backhoe, you get a unit that replaces many special machines.

GENERAL CONTRACTOR TELLS US:

# "I do all kinds of jobs with this machine"

"In my line of work," says J. D. Rausch of Hamburg, Pa., "I do all kinds of jobs—excavating, trenching, backfilling, bulldozing, grading, hauling, loading and unloading materials—besides furnishing compressed air for pneumatic tools. *I do all these things with just one machine*—my Schramm Heavy Pneumatractor. It takes the place of a whole fleet of special machines and when I'm not using it, I rent it out."

Here's the low-cost answer to the general contractor's problem. Pneumatractor is a one-man operated, self-propelled air compressor and tractor combined. Drive it right to the job and along with the job. Convert it in an instant from tractor to compressor, right from the instrument panel. Use its Front End Loader to make short work of hard-to-handle materials. Dig to a depth of 9'6" with its Backhoe. Use its Dozer Blade to grade and backfill. Or furnish 125 cfm of compressed air to power all sorts of air tools. There's almost no end to the jobs Pneumatractor can do.

*Inexpensive, too!* Pneumatractor costs far less than a comparable air compressor and a comparable tractor. In operation, its patented Pneumastat control regulates engine speed in accordance with air demands—saves up to 50% on fuel costs. And on maintenance you really save, for you service only one machine instead of several. Get full details of the Schramm Pneumatractor now. Just write for Catalog 5540 or see your local Schramm Dealer.

Attachment of tilting angle blade transforms Pneumatractor into a grader for gutters or shoulders. Pneumatractor also plows snow, sweeps sand or gravel, operates 3-gang tamper or four single tampers, powers a host of air tools.

Hydraulically operated for loading or unloading, high lift of Pneumatractor clears 9'6" side of truck. Can also be used for hoisting men and materials where scaffolding would otherwise be necessary.

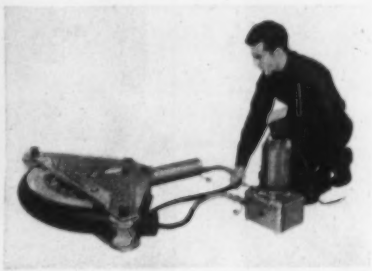
**Schramm, Inc.**

MANUFACTURERS OF AIR COMPRESSORS

620 North Garfield Ave. • West Chester, Pa.




accommodate all types of stakes, and the machine is said to be able to pull steel pipe or rods ¼ in. to 2¼ in. in dia. UNIVERSAL FORM CLAMP CO., 1238 N. KOSTNER AVE., CHICAGO 51, ILL.



## Lightweight Power Bender Can Handle 4 In. Pipe

A lightweight hydraulically operated power bender has been designed to put a 90 deg bend in pipe up to 4 in. in dia in one ram stroke. Rated at 40 tons, this No. 884 bender is portable, being built mainly of aluminum sections.

The unit can be used in any position, the manufacturer claims. Attachments are available for bending thin-wall, tubing and busbar. GREENLEE TOOL CO., ROCKFORD, ILL.

## Compactor Offers Varying Working Widths

A vibratory pan type compactor now is available with six independent units in the workhead that may be detached and operated individually.

An improvement on the design of the previous Jackson compactors, the new model has been stepped up from a power standpoint so that each of the six compactor units now delivers up to 4,200 3-ton blows per minute, an increase of about 2,000 lb per blow over the previous model. Two generators of 7.5 kva capacity each supply current to the compactors. JACKSON VIBRATORS, INC., LUDINGTON, MICH.

# TORRINGTON *SPHERICAL ROLLER* BEARINGS

## This bearing can take thrust, too!

Design is the secret. TORRINGTON Spherical Roller Bearings are made with an integral center flange on the inner race. This assures *positive radial stability and accurate positioning of rollers* wherever high radial load and heavy thrust are encountered under conditions of misalignment.

From crushers to cranes, power shovels to pulverizers, you get long, maintenance-free operation, better performance in your equipment, more value from your bearing dollar when you specify these rugged dependable bearings.

Prove to yourself that TORRINGTON design does make a difference. Next time specify TORRINGTON Spherical Roller Bearings. They're available with either straight or tapered bore, for shaft or adapter mounting.

THE TORRINGTON COMPANY

South Bend 21, Ind. • Torrington, Conn.

*District offices and distributors in principal cities of United States and Canada*

**TORRINGTON BEARINGS**

**Spherical Roller • Tapered Roller • Cylindrical Roller Needle • Ball • Needle Rollers**

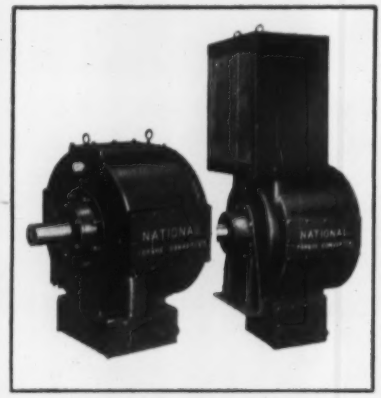
This National Torque Converter, in use on an oil drilling rig, is closely related by design to our new line of torque converters for general industrial use. They range from 100 to 1000 hp.

## How National Torque Converters reduce power transmission costs

Power transmission equipment on heavy-duty machinery must take such terrific punishment that the first question experienced operators ask is not "How much does it cost" but "How much does it cost to *maintain?*" And in this figure, they include the cost of any repair or replacement down-time!

Here's an answer from the oil field, where no weakness is tolerated in either men or machines, and even normal service constitutes a "torture test." A user had three National Torque Converters connected to 550-hp diesels serving a rig drilling near Odessa, Texas. After three years and two months of round-the-clock operation with no repairs to the converters, the rig was overhauled. Only replacement needed was one mount and bearing in one converter unit.

What, besides saving money, can a National Torque Converter do for *your* big machinery? Well, it can eliminate engine stalling and overloading, let the driven machine work at full capacity every minute no matter how the load may vary. It can eliminate wrestling matches between operator and controls. It can "up" the daily output of the machine.



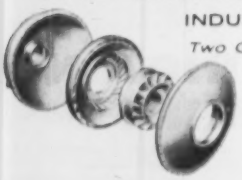

National Torque Converters are manufactured with or without integral cooling systems.

If you operate heavy-duty machinery from 100 to 1000 hp, for earthmoving, logging, mining, or similar assignments, our twenty years of fluid transmission experience can probably help you save. Let one of our engineers study and analyze your problem, and tell you how National Torque Converters might serve you. Write: The National Supply Company, Two Gateway Center, Pittsburgh 22, Pennsylvania.

**THE NATIONAL SUPPLY COMPANY**

INDUSTRIAL PRODUCTS DIVISION

*Two Gateway Center, Pittsburgh 22, Pa.*



*Pace-setters in the progress of industrial power transmission*


# Publications

**Steel pipe**—Physical and chemical properties engineering data, and classification of Trentweld stainless steel and high alloy pipe and tubing are offered in a 48 page booklet, which also describes the uses and design of various types of stainless steel and high alloy pipe and tubing. The manual covers products from ⅛ to 40 in. OD—TRENT TUBE CO., EAST TROY, WIS.

**Plastic pipe**—An 8 page pamphlet describing pressure-rated plastic pipes and fittings has a table on pressure-temperature ratings for various sizes and recommended pumping depths, plus illustrative materials on polyethylene. CRANE CO., 836 S. MICHIGAN AVE., CHICAGO 5, ILL.

**Electric eraser**—An information sheet describes the features of a new erasing machine for draftsmen, the "Sovereign", which is said to minimize torque pull—FREDERICK POST CO., 3650 N. AVONDALE AVE., CHICAGO 18.

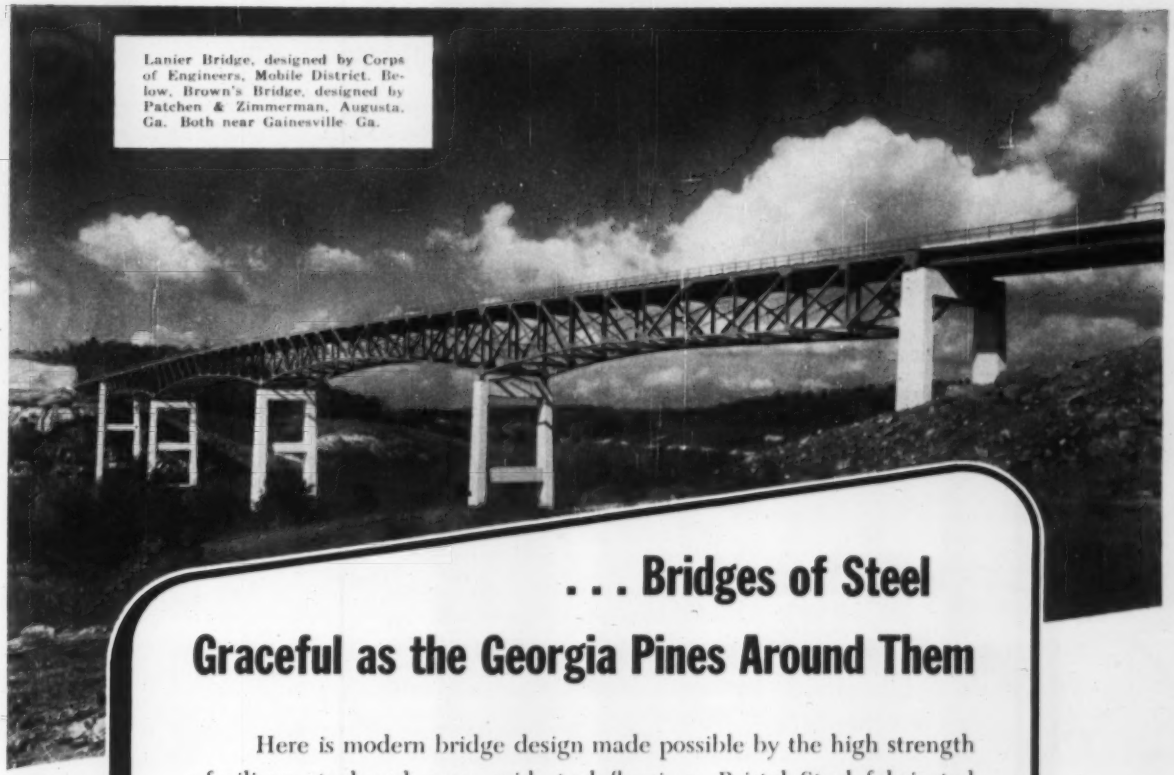
**Concrete tanks**—A 2 page bulletin is available on prestressed concrete tanks in sewage treatment plants. Listing of completed jobs and dimensions is included—PRELOAD CO., 211 E. 37TH ST., NEW YORK, N. Y.

**Photometer**—A new photometer for measuring dust and smoke concentration in the air is illustrated in an 8 page bulletin. The unit is applicable both indoors and outdoors—PHOENIX PRECISION INSTRUMENT CO., 3803 5TH ST., PHILADELPHIA 40, PA.

**Water Pumps**—Tait presents in a loose-leaf catalog its complete Commander line of water pumps, including jet, submersible, and piston type pumps for up to 1,250 gph and 80 psi service. TAIT MANUFACTURING CO., 200 DETRICK ST., DAYTON 1, OHIO.

**Clay pipe**—A 4 page booklet illustrates pipe trenching conditions requiring extra-strength pipe and has tables of safe supporting strength and crushing strength requirements—CLAY SEWER PIPE ASSOCIATION, INC., 5 EAST LONG ST., COLUMBUS 15, OHIO.

**Wheel Ditcher**—An 8 page folder describes the new Model 774 wheel type ditcher, which is Barber-Greene's first offering in the wheel ditcher field to complement its line of vertical boom and ladder type machines. Several features of the model are described. BARBER-GREENE CO., 400 N. HIGHLAND AVE., AURORA, ILL.



Lanier Bridge, designed by Corps of Engineers, Mobile District. Below, Brown's Bridge, designed by Patchen & Zimmerman, Augusta, Ga. Both near Gainesville Ga.

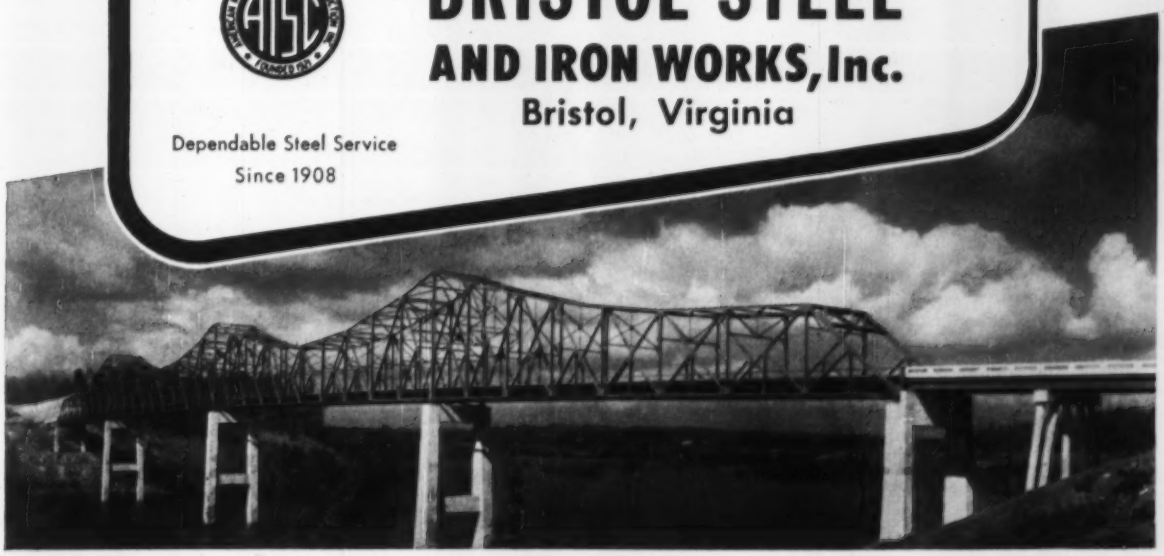
## . . . Bridges of Steel

## Graceful as the Georgia Pines Around Them

Here is modern bridge design made possible by the high strength of silicon steel and open grid steel flooring. Bristol Steel fabricated and erected more than 2200 tons of steel for the superstructures of these bridges and installed an additional 500 tons of open grid steel flooring. Our 49 years of experience and the facilities of our two modern plants insure unquestionable ability to meet the highest standards of YOUR structural steel requirements.

# BRISTOL STEEL
## AND IRON WORKS, Inc.
### Bristol, Virginia

Dependable Steel Service
Since 1908



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## Equipment Education

### Texas A&M earthmoving school stresses operation

A series of five-week earthmoving courses, designed to train practical operators to meet the anticipated demand under the nation's roadbuilding program, will begin at Texas Agricultural and Mechanical school early in September.

The courses are to be conducted under the school's Engineering Extension Service and—like courses now being planned at several other major U. S. universities—will stress practical aspects of earthmoving equipment operation, rather than theoretical problems.

According to Texas A&M officials, three courses will be given with emphasis on the desire of students to make the construction industry a career, rather than on previous academic credits or standing. The courses:

- Crawler-type tractors of all sizes, and employing all attachments, including carrying scrapers;
- Motor graders and pneumatic-tired tractor-scraper combinations;
- Boom-type equipment.

Tractor and grader courses will be five weeks each; boom equipment courses will last 10 weeks. Tuition for the first two courses will be $300, for the boom equipment, $600.

• **Classroom work included**—Objective of the courses, according to A. L. Kramer, coordinator of the program, will be to make an employable operator out of the students. "Students will know the machine they operate and its maintenance factors," comments Mr. Kramer, "but we do not expect to train full-fledged operators who will need no further guidance."

Each course will include three 55 minute classroom sessions daily devoted to fundamentals of earthmoving, power limitations, materials and related information. The remainder of each day will be devoted to field work, with instruction in acual use and handling of the equipment. Nearly $600,000 worth of equipment—supplied by equipment manufacturers—will be available to the students under a one year loan agreement with the school.

Classes of 20 students will be divided into two 10-man groups each, with groups alternately in the field or in class.

Three instructors are to be assigned to each course—two to handle field work, while the third concentrates on classroom instruction. All of the instructors are to be recruited from the construction industry, and will be qualified by actual earthmoving experience.

• **Support**—Although the Texas chapter of the Associated General Contractors' Highway and Heavy Construction Division is not officially listed as a sponsor of the courses, its officers have individually approved the instruction.

Frank Funk, of the L. H. Lacey Co. of Dallas, who is chairman of the education committee of the Highway and Heavy chapter, said that the courses at A&M could be an answer to the great shortage of skilled operators.

"The school will turn out Grade 2 operators," said Funk, "who can be taken in tow and developed into top men with proper guidance."

## Graduate Course Will Tap Sanitary Engineer Agencies

A graduate program in sanitary engineering will be offered, starting this month and also in September, by the department of civil engineering of the University of Cincinnati graduate school.

Cooperating with the university's civil engineering department, its Institute of Industrial Health, and Kettering Laboratory are the local Robert A. Taft Sanitary Engineering Center (national research laboratory of the U. S. Public Health Service) and the Ohio River Valley Water Sanitation Commission.

Graduate students, starting with a bachelor's degree in engineering or science, will have the opportunity of working with these and other agencies as part of their course work. These include the university's Tanners Council Research Laboratory and the City of Cincinnati's division of sewage treatment.

Engineers and scientists from the cooperating organizations will assist the university in teaching and planning.

## Engineering Students Join Summer Program of PHS

Sixteen college engineering students have been selected for summer employment by the Public Health Service under the Commissioned Officers Student Training Extension Program.

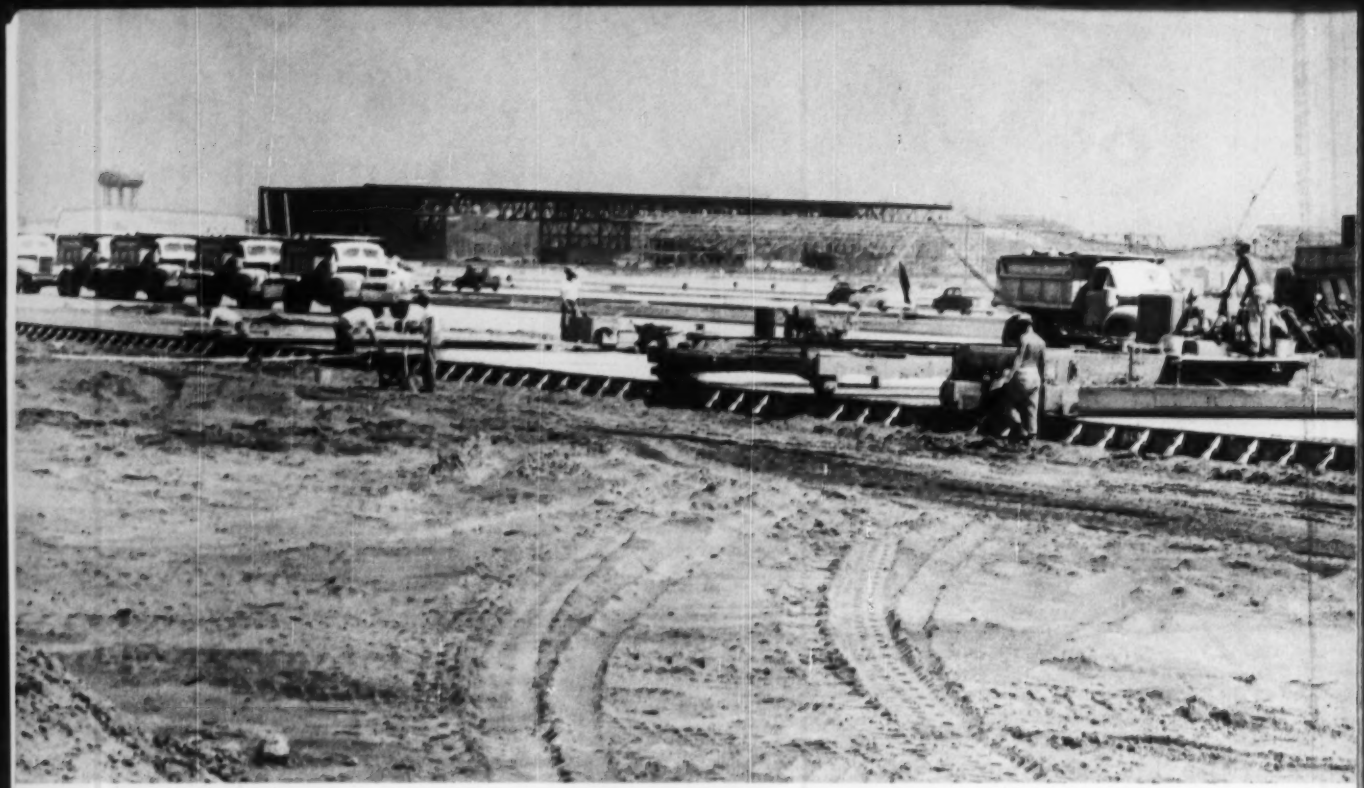
This is the first year that engineering students have been included in the COSTEP, one of PHS's programs designed to attract young people to careers in public health.

GULF

New lock under construction on the Warrior River, Eutaw, Alabama. Another important project where the contractor, Massman Construction Company of Kansas City, Missouri, used Gulf petroleum products exclusively.

# Building a road... a dam... a bridge... or an airfield? On any project...

# GULF CAN HELP YOU!



This is the largest and longest offshore pipeline to be laid in the marshes of Louisiana. The contractors, Sharman, Allen, Gay & Taylor, Inc., chose Gulf quality fuels and lubricants to help speed the job.

New Plattsburgh (New York) Air Force Base for B-47 bombers is nearing completion. Photo above shows 11,760-foot runway under construction by Winkelman-Tomkins-Jones of Syracuse, N. Y. Gulf furnished 90% of the petroleum products used by *all* contractors on this huge project.

# GULF PRODUCTS and FINE SERVICE

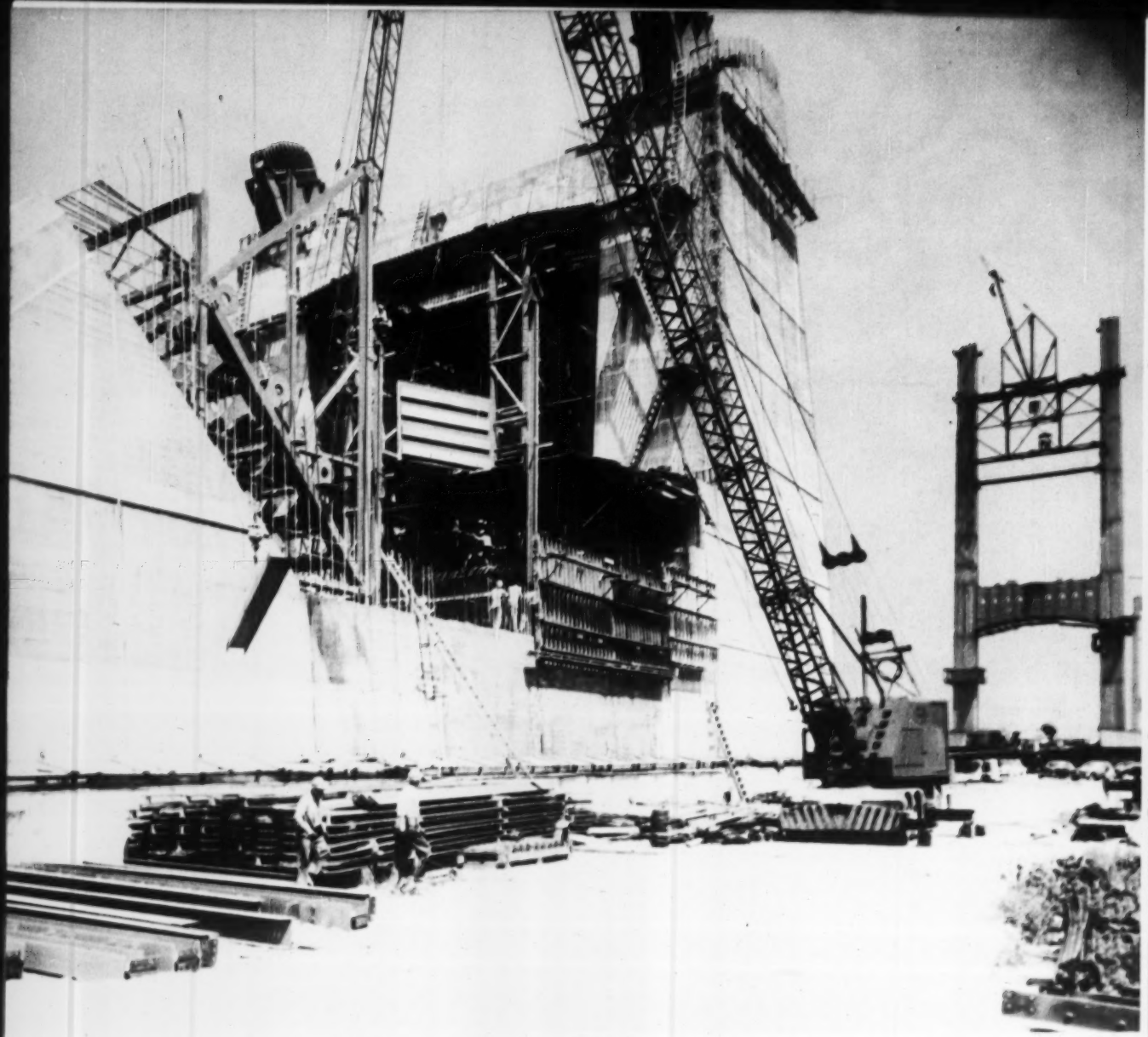
## reduce delays, keep equipment rolling!

You benefit 3 ways when you deal with Gulf for your petroleum products. Here's why:

• You're sure of prompt delivery. 1500 strategically located Gulf warehouses—in 32 states—provide an unfailing supply of all the fuels and lubricants you need.

• Your Gulf Sales Engineer is at your service to help you achieve the most efficient use of petroleum products. And he's backed by 1300 scientists and engineers at the Gulf Research Laboratories. This pool of technical know-how is yours to command.

• Gulf quality fuels and lubricants insure top engine performance . . . help you avoid mechanical delays. You'll have a smoother-running job . . . and lower maintenance costs.



Spanning the Delaware to connect the New Jersey Turnpike and the State Expressway is the Packer Avenue Bridge. Contractors Booth & Flinn, of Pittsburgh, use Gulf petroleum products exclusively.

**FIND OUT FOR YOURSELF HOW GULF PRODUCTS AND FINE SERVICE CAN HELP YOU. CALL YOUR NEAREST GULF OFFICE, OR USE THE COUPON BELOW.**

**Gulf Oil Corporation**
1822 Gulf Building, Pittsburgh 30, Pa.

Without any obligation on my part:

- ☐ Send me a copy of "Gulf and Your Business."
- ☐ Send me a copy of "Contractors Guide" (Lubrication and Maintenance Information).
- ☐ Have a Gulf Sales Engineer call on me.

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# "Sell the Company as well as the Product"

*says Merryle Stanley Rukeyser, financial writer and business consultant*

"Selling products isn't the sole function of advertising. Advertising can also merchandise ideas and concepts—and can establish in the public mind an image of a company as a successful institution.

"Such public acceptance pays off when a company, in providing for growth, looks to the savings of thrifty outsiders—investors—for capital funds.

"It is impractical not to relate sales . . . and product recognition . . . to the field of finance, where the need for creative capital places a premium on favorable corporate recognition and identification."

If you have a financial interest or responsibility in a company, encourage its management to invest adequately in advertising. You will find that McGraw-Hill business and technical magazines, read by key men in industry, provide the most efficient way to reach many of today's major markets.

## McGraw-Hill Publications

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**All-welded construction** *on San Francisco skyway is typical of savings in steel and cost through welding. Courtesy California Highway and Public Works, State Department of Public Works, Division of Highways, Sacramento, California.*

# TAKES LESS STEEL...COSTS LESS

## ...because it's welded

Savings averaging 15% to 20% in steel requirements are being realized through the use of welding by state bridge programs throughout the country.

Increasing use of welded design comes through the change from through-type to deck-type bridges that incorporate component construction. Greater economy of material is attained since full sections of steel are used. No reductions in sections are necessary as with riveted designs. When continuous designs are utilized, overall depth of bridge deck can be reduced affording greater head room at appreciable savings.

**STRUCTURAL ENGINEERS!**

*New 11th Edition Procedure Handbook of Arc Welding Design and Practice has completely revised 466-page section giving latest developments in structural design. Available at small cost. Write . . .*

**THE LINCOLN ELECTRIC COMPANY**

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**When** welding saves steel

**Has** simpler design

**Yet** costs less

**WHY** use anything but welded construction

## Tests Paid Off

### Chemical may be cure for frost heaving of roads

After several years of experimentation on railroad roadbed maintenance, a Canadian chemical concern believes it has found an answer to a serious highway maintenance problem—damage caused by frost heaving.

The answer, according to Lignosol Chemicals, Ltd., of Quebec City, is treatment with Lignosol—a byproduct of sulphite pulp manufacture. Injected into the soil under the pavement, the chemical is said to decrease permeability, thus reducing the amount of moisture brought up to the frost line by capillary action.

• **Reasons**—According to the chemical company, frost heaves result from the freezing of moisture brought to the frost line by capillary action—not from freezing of moisture present in the soil initially.

The capillary action creates layers of ice at the frost line—layers whose thickness depends on three things: the distance from the frost line to the groundwater level, the grain size and distribution of the soil, and permeability. Ice layers don't form in clean gravel or sand, the engineers point out, since there is nearly no capillary movement of moisture in these materials.

In clay soil, in fact, capillary movement is very slow, and thick ice layers seldom form.

But in soils whose grain distribution lies midway between sand and clay, and in silty sands and silt soils, winter brings the thickest ice and, consequently, the worst heaving.

Injection of Lignosol at 6 foot intervals appears to reduce this problem.

• **Big problem**—For the CNR, frost heaving represents a major problem. On long stretches of its trackage, maintenance crews must place wood shims between rail and ties to smooth out bumps caused by sudden frost heaves; then the shims must be removed when the frost leaves the ground. The process is expensive and must be repeated each year.

Seeking a solution, the railway, five years ago, began an experimental program with the University of Alberta, where some previous tests had indicated the possibilities of Lignosol.

Results of actual tests along the right of way were impressive. Along 34 sections of track, CNR section gangs injected the chemical at 6 foot intervals, driving injection pipes four to five feet into the ground with jackhammers, in an area just outside the ties. The chemical was pumped through the pipes until it broke surface.

These experiments started in Quebec during the winter of 1952, and have continued each year, moving into southern Ontario in 1955. In a majority of cases, says Mr. Atkinson, "substantial" cost savings have been realized, and the railroad has recently announced it would greatly increase its use of the chemical.

"On the basis of results to date," adds Mr. Atkinson, "it appears that a scion injected with Lignosol would not need to be treated a second time."

## Stronger Steel

### Ultra-high-strength steel developed by NBS lab

Ultra-high-strength steel that can be heat treated to a strength of 285,000 psi and yet has sufficient ductility for structural applications has been experimentally produced in the National Bureau of Standards thermal metallurgy laboratory.

The NBS investigation, aimed at developing a high strength steel with a high impact resistance for aircraft structures, indicated that the strength level desired could not be obtained in steel containing less than about 0.40% of carbon if the steel was to be given some form of tempering treatment subsequent to hardening.

One particular composition appeared to have an excellent combination of strength and ductility. This was a steel based on AISI 4340 modified by the addition of silicon and titanium. Boron was added to increase hardenability. Tests confirmed an ultimate tensile strength for this steel of about 285,000 psi and an impact resistance of 16 ft-lb in Charpy impact tests at both 70 F and −40 F.

Better ductility and toughness properties were obtained on a single heat that was vacuum remelted. A conventional oil quench from 1,650 F, followed by double tempering in the temperature range 400 to 500 F, produced the best all-around properties.

The steel was made by normal melting and working processes and should not be difficult to manufacture. It is believed that the properties obtained on the laboratory steels can be duplicated or even improved in well made commercial steels.

## Fuel and Explosive

### Job-mixed blasting agent tried on Canadian work

What is said to be a new form of blasting agent that can be mixed on the job, is claimed to cost less than standard agents and is safer to transport and handle is being introduced into Canadian construction this year.

According to Canadian Industries Ltd. of Montreal, trial blasts so far have indicated that the blasting agent —ammonium nitrate mixed with ordinary fuel oil and set off by a primer stick of high explosive—is suitable for open pit mining and quarries. The company's research and technical service divisions are studying other possible applications—particularly for construction work.

The ammonium nitrate used in the blasting is manufactured in pellets roughly the size and shape of bird-shot ("prilled"), and is packaged in 80 lb lots in multi-walled paper bags. Oil used is ordinary diesel fuel, low in cost and readily available.

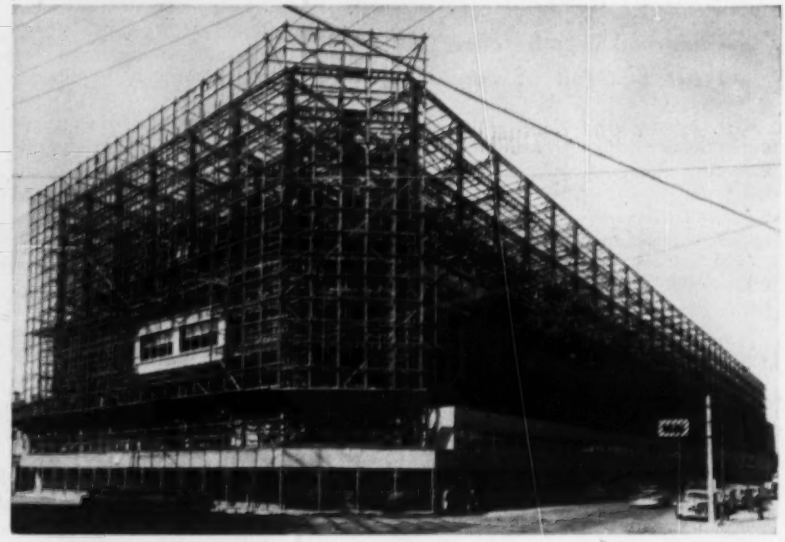
M. J. Watson, general manager of CIL explosives division, said that the blasting agent can be mixed on the job, right in the bore holes. Usual procedure has been to pour the ammonium nitrate pellets into the holes, adding one gallon of fuel oil for every 80 lb of pellets.

Mr. Watson commented that ammonium nitrate is relatively safe to transport and handle, as long as it does not come into contact with a sensitizing agent such as oil. This mixture is highly flammable, and "no smoking" rules must be strictly enforced in mixing and loading areas.

The most widespread use of the sensitize ammonium nitrate to date has been in surface operations, where the work is relatively dry; where large-diameter bore holes are used; where the rock formation is similar to shale, slate, limestone and where large mechanical equipment is available to muck out. However, the mixture has also been used as a top load in holes that are wet—and, under certain conditions, in harder formations.

Up to the present, Mr. Watson said, the mixture has not been used extensively in wet areas. Where the bottoms of drill holes are wet, the usual practice is to load the hole with water-resistant high explosives to a point where the charge is above the water line. Then the new mixture can be used as a top load.

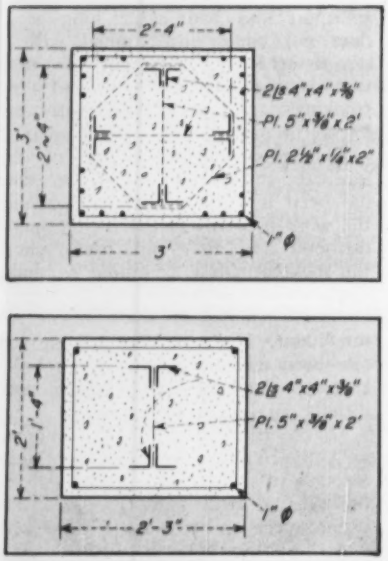
**CORE** of column is builtup steel section anchored to caisson foundation.



**STEEL FRAME** of this 9 story Tokyo office building later will be encased in reinforced concrete, eliminating shoring of forms.

# Steel-Concrete Members Form Building Frame

The Daisan Marunouchi Building, under construction in downtown Tokyo since September, one of the largest buildings in the Orient, will have unusual structural framing. In girders and columns, steel sections are designed to work together with the concrete in which they are embedded.




**DETAILS** of columns (top) and girders (bottom) show builtup steel members embedded in reinforced concrete.

The structure, designed by Mitsubishi Real Estate Co., Ltd., and being erected by Taisei Construction Co., Ltd., will consist of nine stories above ground for use as office space, with a total floor area of about 1.2 million sq ft. There will be three stories underground for power and mechanical equipment, stores, garages and restaurants.

With story heights varying from 11 to 13 ft, the height of the main parapet will be 102 ft, the maximum permitted in Tokyo. A penthouse will be about 138 ft above the ground.

The building is founded on soft ground. This necessitated using 312 caissons, 5 to 6.5 ft in diameter, and excavating to a 72 ft depth. As the caissons were dug, the walls were supported by overlapping sections of corrugated metal, which in turn were braced with metal rings.

• **Composite construction**—The structural frame is concrete reinforced with structural steel sections. The steel sections, in columns and girders, are built-up with plates and angles. Column cores consist of four pairs of angles, tied together with steel plates around the outside and across the diagonal. Beam sections are open-web joists with angle flanges.

Column spacings are short, 20.2 ft; however, they permit the use of small beams and make available space for air-conditioning ducts.

Precast concrete and tiles are mainly used for the exterior walls.

The building is due for completion in March, 1958.

## Private Funds to Finance Lebanon's Port Expansion

For an approximate cost of $15 million, the busy, congested port of Beirut, Lebanon, will be enlarged through the addition of a third berth, more quays and warehouses.

Expansion work will start in June and will be carried out by the privately-owned Beirut Port Co. under an agreement with the Lebanese government.

Port expansion will provide berthing for 23 or more ships, to ease a situation that now sees as many as 12 ships anchored outside the harbor awaiting their turn to enter. Experts have said that construction of a third berth would double the port's capacity to receive dry cargo—from 2 million to nearly 4 million tons annually.

Expansion work—including doubling the length of the outer jetty, new docks, warehouses and a free zone—will take two to three years to complete. Designs of the third berth, prepared by Lebanese

# Greenville, S.C. Builds for 1990 with CLAY PIPE

The new sewerage program now underway in Greenville looks far into the future of this fast-expanding area. Existing main and outfall sewers are being paralleled by larger ones designed to serve the community until 1990, or until the present 130,000 population has grown to 233,000. Greenville is following the pattern of hundreds of other cities which are building for the future by specifying the *guaranteed* pipe—Vitrified Clay. The total project will cost $3,500,000.

"Because of the character of the wastes handled and expected to be handled by the sewers," reports Superintendent E. D. Fry of the Greater Greenville Sewer District Commission, "it is the policy of the Commission to use Vitrified Clay Pipe wherever possible and to require it to be used by the subdivisions of the sewer district." Clay Pipe is the *only* pipe that *never wears out*.

*Consulting Engineers*—**Wideman and Singleton**
*Contractors*—**A. H. Guion & Co., Penden Construction Co., Glenn Construction Co.**
*Greater Greenville Sewer District Commission*—**E. D. Fry, Supt.**

THE PUBLIC *KNOWS* CLAY PIPE IS BEST

*Vitrified* CLAY PIPE

CLAY PIPE NEVER WEARS OUT

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O-652-B

# AUTOMATIC UNDERGROUND SEWAGE LIFT STATION

**using weil**

**Heavy Duty Vertical Screenless Sewage Pumps**

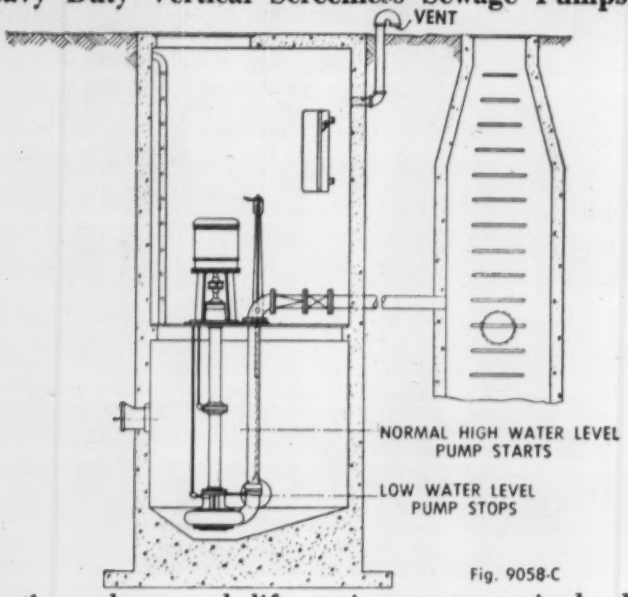



Fig. 9058-C

**Automatic underground lift stations are required when sewage or waste from a group of industrial buildings or residences cannot drain by gravity into the main trunk sewer or treatment plant. An economical installation is this submerged style ejector operating in a wet pit. The motor and electrical controls are mounted above the pump cover. Either single or duplex pumps may be used. Provision for increased loads can be made by installing a single pump in a pit of sufficient capacity to allow addition of a second pump at a later period. Pumps can be supplied with totally enclosed or explosion proof motors and moisture proof or explosion proof control where conditions require.**

**The Weil Heavy Duty Vertical Sewage Pump is supplied with the special non-clog impeller (Fig. C-9001). This impeller is the most important part of this screenless non-clog sewage pump. The complete unit supplies the ideal method of pumping sewage or other unscreened liquids containing solids because the efficiency of this type of unit is measured by its ability to pump waste without trouble from clogging.**

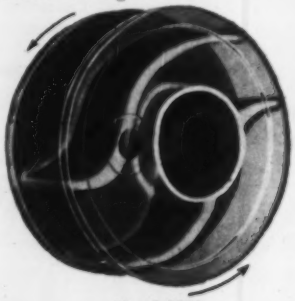


Fig. C-9001

***Send for Bulletin C-900. Special engineering data and requirements for underground lift stations will be supplied upon request.***

**weil PUMP COMPANY**

**1528 No. Fremont St. Chicago 22, Illinois**



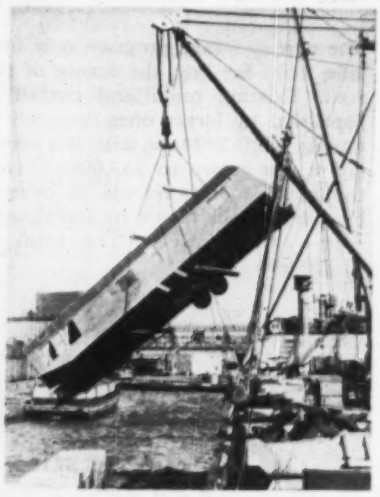

engineers, have been approved by the government and the company.

Both parties also have agreed that the French-owned and operated company should be "Lebanized". Its headquarters will move from Paris to Beirut, the majority of the shares shall be held by Lebanese nationals and the chairman of the board and majority of board members will be Lebanese nationals.

According to the agreement, the company will keep its port concession until 1990, but after 1976 the Lebanese government may negotiate to buy the concession (the concession dates from 1880). Immediately after nationalization of the Suez Canal last year, the government in power tried to "nationalize" the port company, but was defeated by pressure from the public and parliament.

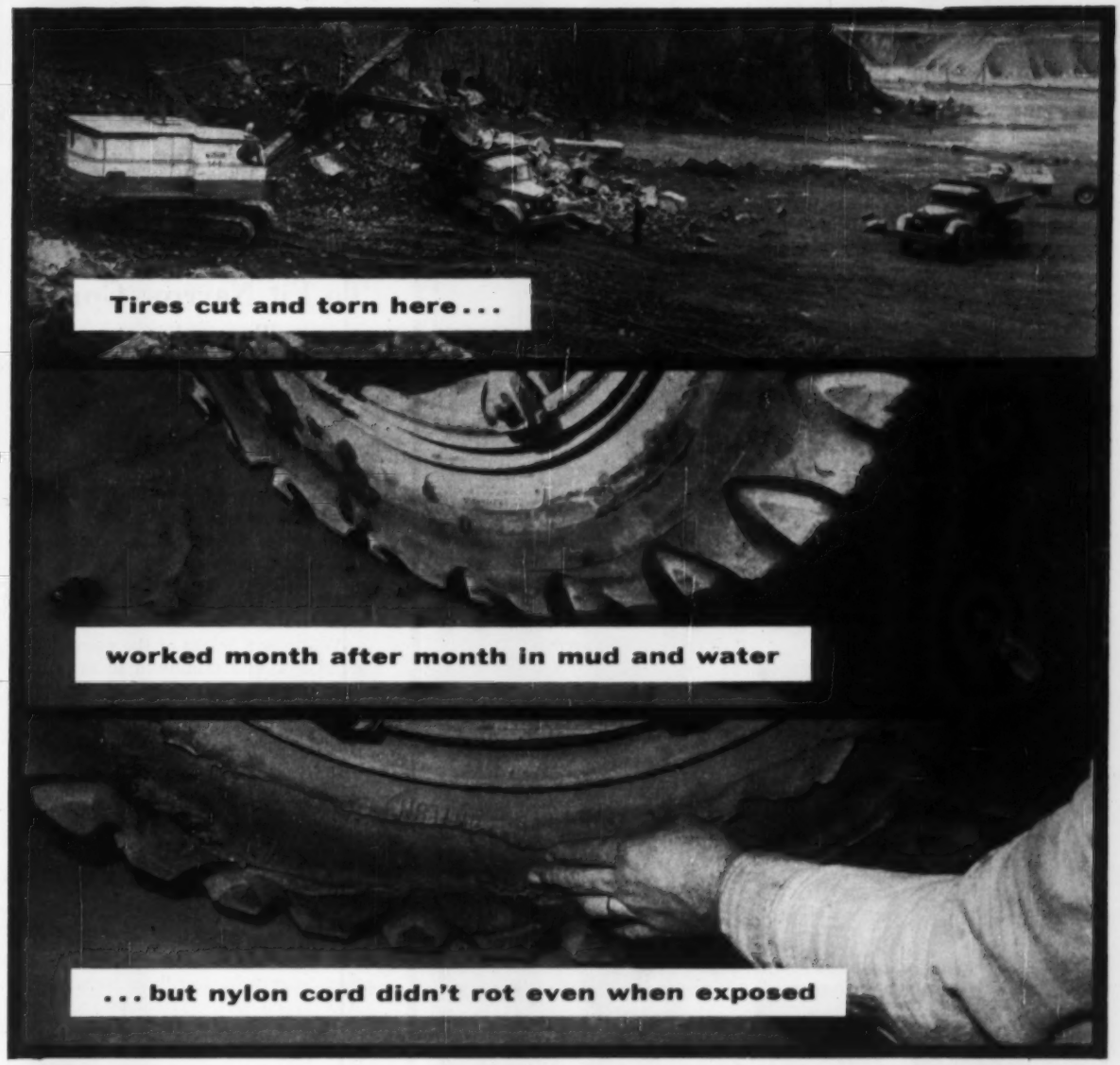
The company will pay Lebanon 35% of its profits as royalty, in lieu of income tax. After the completion of the third berth, the government will get 50% of the profits. So far the government has been getting 10% of the company's profits.

Expansion of the port is necessitated by the tremendous increase of business and Beirut's growing role as transit and trade center for the landlocked Arab states in the Middle East. In five years, transit traffic through the port of Beirut increased fivefold, while business in the "free zone" has more than doubled.



## Trailers Part of Large Shipment for Road Job

Nearly $2 million worth of construction equipment, ranging from house trailers to earth movers, has been shipped from the U. S. by the Raymond Concrete Pile Co. for use in Liberia. Raymond is working on a contract for



*Roy Payne, Gen. Mgr. of Montclair Heights, N. J., plant of Houdaille Construction Materials, Inc., reports:*

## "Nylon cord tires hold up even when repeated cuts expose the cord to water and mud"

"Sharp traprock, along with mud and water, makes a quarry the roughest place a tire can work. The tires on our trucks are repeatedly cut and abraded right through to the cord body—an easy target for rot with ordinary tires, which have to be removed from service as soon as this happens. But this is no problem with our rot-resistant nylon cords; we avoid downtime by leaving our nylons in operation until we reach a slack period. You can see why our tire costs are way down—only nylon cords can take our kind of day-in, day-out punishment and stay working."

**PROVE TO YOURSELF** that nylon cord truck tires give more mileage, more retreads, at the lowest cost per mile. Ask your dealer about nylon cord truck tires today. (Du Pont makes the tough nylon yarns, does not produce tires.)

**Du Pont nylon for tire cord**

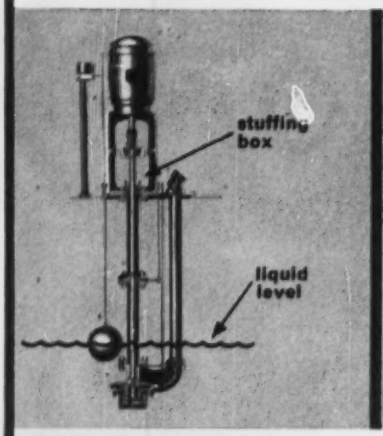
DU PONT
REG. U.S. PAT. OFF.

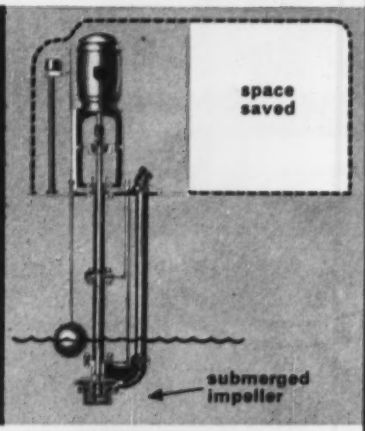
BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

**For trucks and passenger cars, too . . . the strongest, safest tires are made with nylon cord**

*you stop leakage, save space, and cut costs with Yeomans*

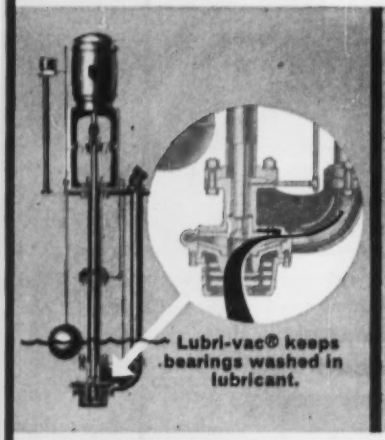
**VERTICAL WET PIT PUMPS**

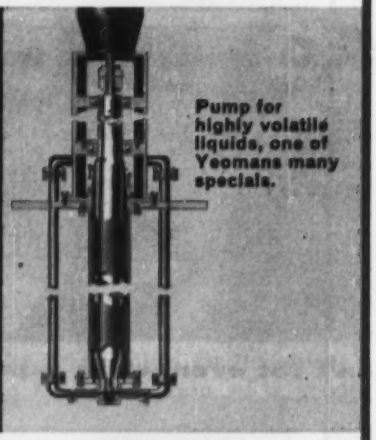



ELIMINATE LEAKAGE. Stuffing boxes and seals are not under liquid pressure. With the Yeomans Vertical Wet Pit Pump there are no costly, annoying, or dangerous liquid leaks, as with horizontal pumps.

SAVE FLOOR SPACE. They use less than half the space required by horizontal pumps. Also, no priming equipment is needed as with suction lift horizontals. Impellers are submerged in the liquid ready for service.




CUT MAINTENANCE COSTS. With exclusive Lubri-vac® bearings are kept free of abrasive matter. Lubricant pressure prevents fluids from working into bearings. Result: Bearing failures are 90% less than with conventional vertical wet pit pumps.

SPECIAL DESIGNS. 59 Years of experience has enabled Yeomans to develop many excellent special designs for pumping "problem materials." All pumps can be furnished with ferrous and nonferrous alloy parts as required.

*Capacity range from 5 to 10,000 g.p.m.*

YEOMANS

Manufacturers of: pumps for drainage • sewage • condensation return • water supply and circulation • equipment for treatment of domestic and industrial wastes.

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Please send me the catalog on Yeomans Heavy-Duty Vertical Wet Pit Pumps for...

☐ solids-free liquids

☐ solids-bearing liquids

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company_____

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the Republic of Liberia in the construction of a 144-mile highway and necessary bridges and structures. The new highway will run from the St. Paul River to Kailahun, to connect with an existing highway that extends from the capital of Monrovia to a point 160 miles inland on the St. Paul River.

## To Fit Narrow Gorge

### Spillway pierces roof of curved powerhouse at Spanish arch dam

The steep narrow gorge in which Spain's Salime Dam on the Navia River is placed posed a tight problem for the designers. Part of the solution was to nestle the powerhouse against the foot of the 434 ft high, 825 ft long arch gravity structure and have it follow the 1,320 ft radius curve of the dam. Also the spillway cut through the roof of the powerhouse.

Width and height of the powerhouse were kept to a minimum so as not to encroach on the 72% downstream profile of the dam. Even then, it was necessary to cut through the roof of the powerhouse to keep the spillway as low as possible. The spillway thus follows the face of the dam and, at the point where it runs through the powerhouse, is shaped to give the water a slight lift to reduce pressure. The spillway is built for a maximum flow of 70,000 cfs, though average flow is only 1,800 cfs.

At the foot of the spillway, the water hits a row of dragons teeth and then goes into a stilling basin where it is turned back on itself by the downstream retaining wall.

The power station's four generating sets also are set along an arc instead of a straight horizontal axis. Capacity is 140,000 kva.

Salime is one of a complex of five dams that will utilize a 1,300 ft drop in a 70 mile stretch of the Navia River. Engineering work for the development is by Saltos del Navia en Comunidad, subsidiary of Electra de Viesgo S.A., and Hidroelectrica del Cantabrico S. A.

## Ceylon to Get $19 Million Loan for Hydro Expansion

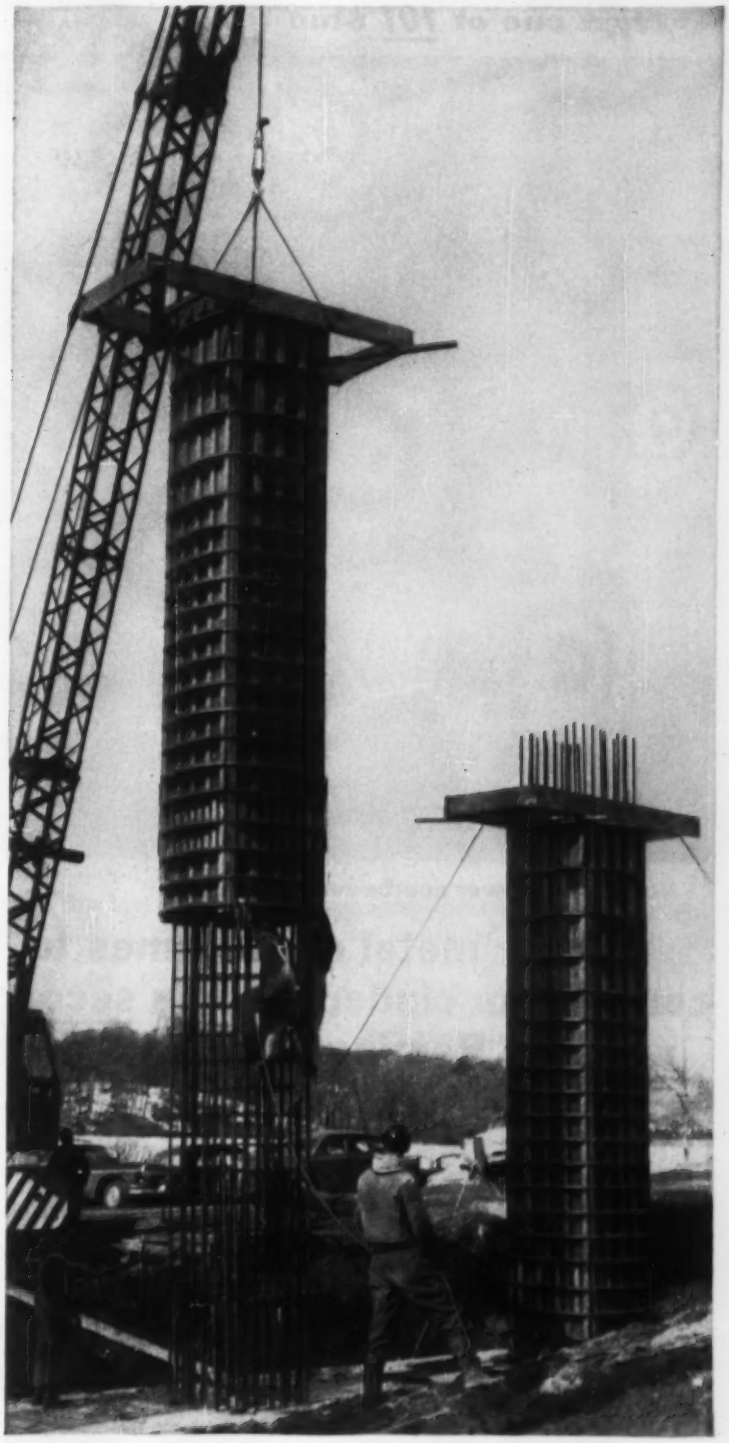
The World Bank has approved Ceylon's application for a $19.1 million loan to be spent on power expansion.

The money will apply on foreign exchange costs of a 50,000 kw expansion of Ceylon's Laxapana hydro project.

Work now is under way on a 25,000 kw enlargement of Laxapana's existing 25,000 kw capacity.

# *Construction savings . . . in concrete form*

When a new way proves both faster and cheaper than the old, it wins new converts fast. That's what's happening to the use of Signode steel strapping to hold column forms together. Into these forms concrete is poured for the new buildings, bridges and overpasses that are giving a new look to America. Wide use is being made by contractors of form designs worked out by Signode, and of Signode formulas for the placement of strapping. Signode field engineers are available, when needed, to help you work out ways to make the most of steel strapping's unbeatable combination of strength and low cost. Why not talk with the Signode man near you? Or write:



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**SIGNODE STEEL STRAPPING CO.**

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Offices Coast to Coast. Foreign Subsidiaries and Distributors World Wide.
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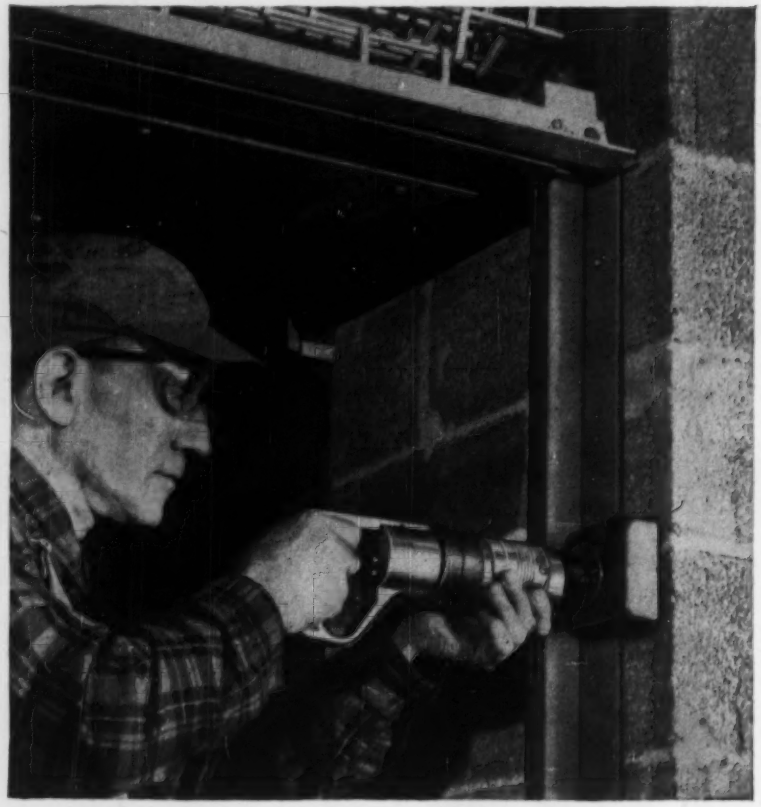
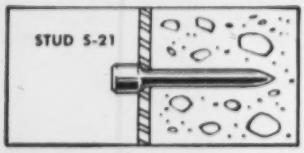
**Just one of *101* Stud Driver uses!**



***No outside power source required—***

**Anchor metal door frames to concrete or cinder block in seconds with the Remington Stud Driver**




**¼" Remington S-21 Stud** with 22 caliber Power Load is recommended for the application above . . . no pre-drilling required. There's a special stud to fit your needs, a Power Load to handle the job.

There's no time lost with this cartridge-powered fastening tool! It sets ¼" or ⅜" diameter studs in concrete or steel . . . up to *six* a minute, either size. Barrel change-over takes only 90 seconds *right on the job*. Over 40 Remington Studs to choose from, plus 22 and 32 caliber Power Loads scientifically graded to furnish *exact* power you need. Cuts costs, saves time on light, medium or heavy-duty fastenings!

**FREE BOOKLET** tells how and where to use the Stud Driver. Clip and mail coupon today for your copy.

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Please send me your free booklet which shows how I can speed the job and save with the Stud Driver.

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# Books

## Desk Calculator Tricks

COMPUTING WITH DESK CALCULATORS—By Walter W. Varner, 108 pp. Rinehart & Company, 232 Madison Ave., New York 16, N. Y., $2.

Although electronic computers are on the horizon, desk calculators still form the computing backbone of most engineering offices. This book, for engineering and scientific personnel, provides desk calculator know-how in the more complex calculations of roots, calculation with approximate numbers, interpolation and statistical application.

The book presents its material in rapid fire order: the formulas involved and methods of processing them through the desk calculators where necessary. Thus, it should serve as a quick reference for a multitude of unusual and seldom used mathematical techniques.

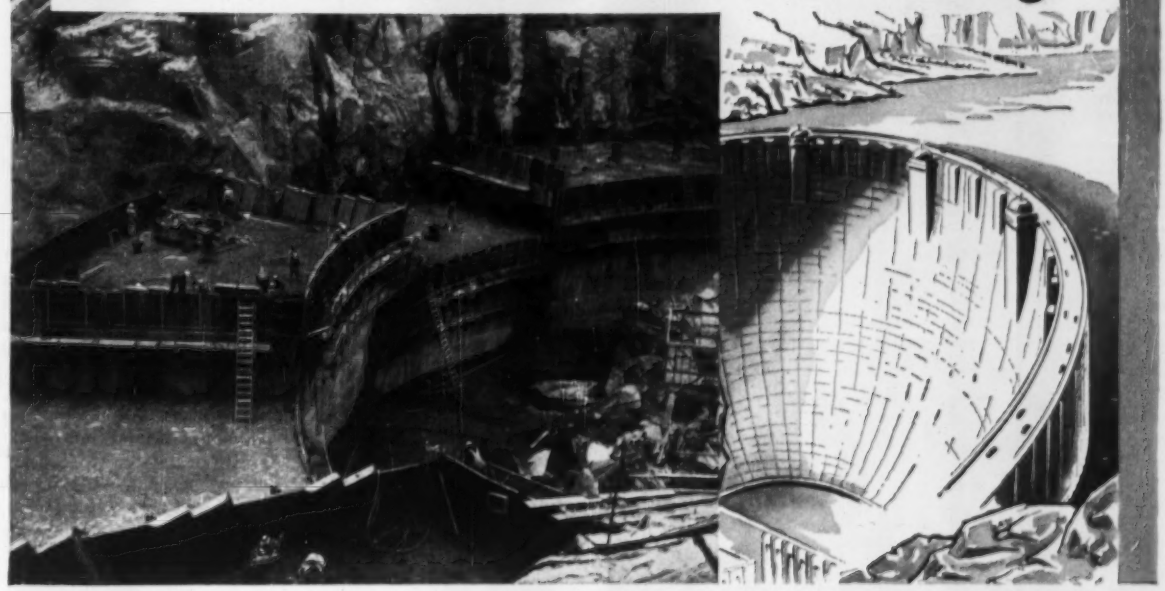
## Miscellaneous Notes

• **Metropolitan maps**—Seventeen new topographic maps of metropolitan areas have been published by the U. S. Geological Survey. The compilations include all cultural and physical data contained on several 7½ min quadrangle maps originally prepared from aerial photographs and ground surveys. These new maps are in addition to 14 similar maps for this series. All are published at the scale of 1:24,000-1 in. equals 2,000 ft. The latest maps are for: Albuquerque, Austin, Baton Rouge, Buffalo, Davenport, Rock Island, Moline, Detroit; Gary, Ind.; Long Beach, Calif.; Los Angeles, Oakland, Peoria, San Francisco, Seattle, Toledo, Wilkes-Barre, and Worcester, Mass. Copies are available from USGS in Washington 25, D. C., for those areas east of the Mississippi River, and at Denver for those to the west. Maps are priced at $1.50 each.

• **Engineers' Pay**—A 40 page booklet gives the results of a comprehensive salary survey by the National Society of Professional Engineers of engineers employed by private consulting firms. The report, titled Engineers Employed by Private Practitioners, contains data on salaries, hours, fringe benefits, distribution of engineering employees by grades and nature of the consulting firms. Price is $1 per copy, 50 cents for NSPE members.

Write to National Society of Professional Engineers, 2029 K Street, N.W., Washington 6, D. C.

# Here's the Solution to Arch Dam Forming...



## One Form Design by BLAW-KNOX can be Shaped to All Surfaces

**Can be Curved . . . Twisted . . . Warped . . . Convex or Concave**

Special forms developed by Blaw-Knox Steel Forms engineers can be adapted on the job to fit all the contours, on both upstream and downstream surfaces of arch dams. A special jack screw arrangement allows the forms to be curved, twisted or warped when they are set to fit convex or concave surfaces.

Such forms are being used very successfully on Donnells Dam in California. This dam is a thin concrete arch—ranging from 10-ft. thickness at the crest to 41-ft. at the base and rising 290 ft. above the streambed level. It is set on a concrete foundation that extends more than 180 ft. below streambed to bed rock. When completed the dam will be the farthest upstream of the three dams in the Tri-Dam Project which will supply water for irrigation and electric power. The project is a cooperative program for the Oakdale and San Joaquin irrigation districts. The Tri-Dam Project is a joint effort of a combination known as Tri-Dam Constructors that is headed by Morrison-Knudsen Co., Inc. and includes Macco Corp., Peter Kiewit Sons' Co., and Stolte, Inc.

In addition to the adjustable features of the new form panels that allow them to be used over and over again on all parts of the dam, they include the other features that have made Blaw-Knox Heavy Forms the standard on all large concrete projects. Their special design allows them to be used interchangeably on many parts of the job and their adjusting screw system assures fastest setting and stripping.

If you are contemplating arch dam work or any heavy concrete project be sure to call on the Blaw-Knox Steel Forms Consultation Service during the preliminary planning stage. You will be assured of simplified, fast forming that increases your profits by reducing time, labor and material costs.

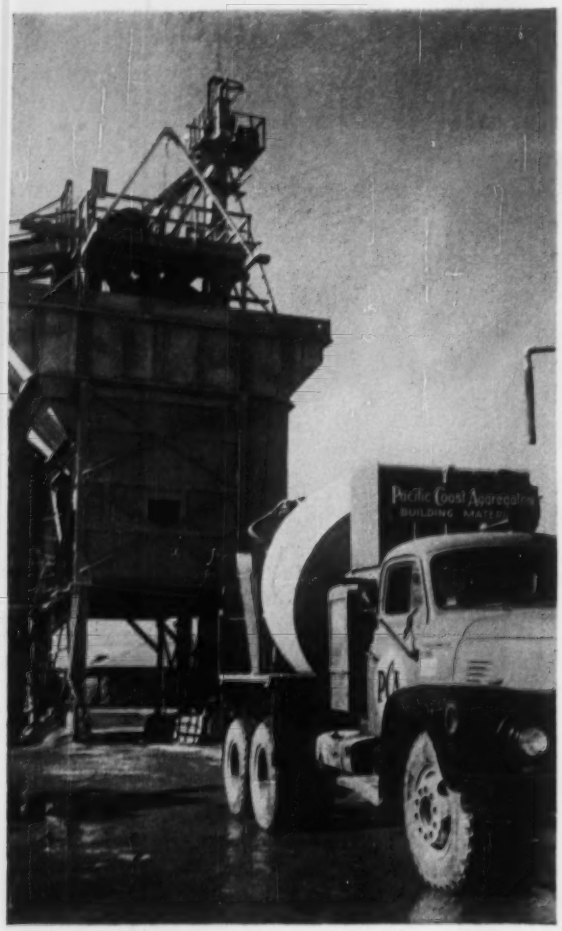
## BLAW-KNOX COMPANY

BLAW-KNOX

**Steel Forms Department • Blaw-Knox Equipment Division**

**P.O. Box 1198 • Pittsburgh 22, Pa. • Phone: Sterling 1-2700**

*Pacific Cement and Aggregates, Inc. proves:*




**Pacific Cement and Aggregates** has fifteen radio base stations, each handling dispatching from a batch plant. Shown above is the base station at Hayward, California (antenna at top of hopper). They now have 165 mixer trucks and 15 cars and pick-ups equipped with mobile radio.

# Fewer trucks per job, less overtime with General Electric two-way radio

General Electric two-way radio means faster, more profitable service. That's why fast-growing Pacific Cement and Aggregates calls it "a valuable tool in selling ready-mixed concrete service to new customers."

PCA has found that two-way radio cuts down the number of trucks needed on a given job. When faced with unavoidable delays or cancellations, radio permits PCA to switch trucks immediately to other jobs.

Two-way radio lets PCA keep customers up-to-date on job progress. And when customers make corrections on final loads, this information is relayed directly to the job site. Finishing crews do not have to be held on overtime.

If a breakdown takes place, you too can send repair equipment to the exact spot within minutes. Your servicemen, dispatchers and supervisors—tied together by General Electric two-way radio—will have full knowledge of overall operations at all times.

Find out how better communications can give you more profit from present equipment. Call your local General Electric Communications consultant, listed under "Radio Communication Equipment" in the Yellow Pages. Or write: General Electric Co., Communication Products Department, Electronics Park, Syracuse, N. Y.

**Drivers at the job site** can instantly report any changes in orders and are under the constant control of the dispatcher. Using G-E two-way radio, PCA has achieved tighter delivery schedules and greater customer satisfaction.

**Each base station** can communicate by radio with adjacent PCA plants, co-ordinating the movements of concrete trucks delivering out of more than one plant, or in those cases where two plants are providing concrete for one job.

GENERAL ELECTRIC

**BRIG. GEN. P. D. BERRIGAN**
completes 30 years of service

**BRIG. GEN. L. J. RUMAGGI,**
new North Central Division engineer

## General Berrigan to Leave Engineers

On July 1, the U. S. Army Engineers will lose through compulsory retirement one of its very able men. He is Brig. Gen. Paul D. Berrigan, who at the age of 52, has completed 30 years of service with the Corps of Engineers, most of them in the western U. S.

The post General Berrigan leaves is that of Division Engineer, North Central Division. He is being succeeded by Brig. Gen. Louis J. Rumaggi.

General Berrigan's tour of service with the Engineers started in 1927 upon his graduation from West Point. His first assignment was in Hawaii, where he served from 1927 to 1930. Upon his return to the U. S. he studied for two years at the University of California, Berkeley, and at the Engineer School, Fort Belvoir, Va.

During World War II, General Berrigan served overseas as Chief, Construction Division, Office of the Chief Engineer, European Theater. He then held a number of posts in the U. S. including District Engineer, Kansas City, and Division Engineer, South Pacific Division.

In June, 1955, General Berrigan was made Division Engineer, North Central Division. As head of this Corps of Engineer office, he supervised work of district offices at Buffalo, Detroit, Chicago, Rock Island and St. Paul and the U. S. Lake Survey at Detroit. Current major navigation projects under construction in the North Central Division area include the St. Lawrence Seaway, the Great Lakes Connecting Channels and the Calumet-Sag project at Chicago.

General Berrigan is a member of a great number of policy-making organizations, among them the Mississippi River Commission, the Board of Engineers for Rivers and Harbors and the International St. Lawrence River Board of Control. He is president of the Chicago post of the Society of American Military Engineers.

The North Central Division's new engineer, Brig. Gen. Louis J. Rumaggi, joined the Corps after graduation from West Point in 1922. He has been Chief of Staff, Sixth Army, Presidio of San Francisco, since May 1955. Before that he was Deputy Chief of Engineers for Military Operations, Washington, D. C.

Among other positions General Rumaggi has held are those of Engineer, Eighth Army, in Korea, and District Engineer, Detroit District.

## Career Engineer Picked to Head Wayne County Roads

Joseph W. Gross, Wayne County Road Commission employee for the last 28 years, has been named to the post of County Highway Engineer to succeed Leroy C. Smith.

A 1925 civil engineering graduate of the University of Pittsburgh, Mr. Gross moved to Detroit in 1929 to begin his tenure with the Wayne County Road Commission as field engineer on surveys for highway, bridge and grade separation projects, parks, parkways and the county airport.

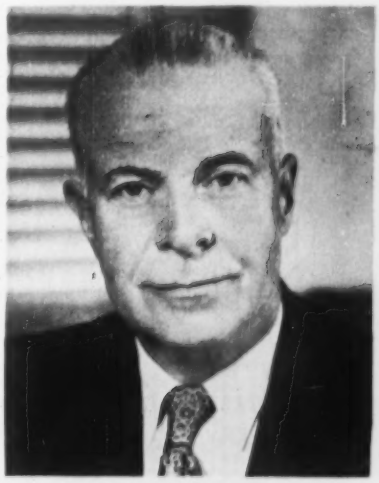
In 1938, he was promoted to the post of secretary of the board of Wayne County Road Commissioners and head of the Administrative Division, supervising the general office, accounting, public relations, personnel and management activities. He became head of the commission's Bridges, Structures and Expressways Division in 1955.

## Kuljian Names Engineer To Head Its Construction

Edward J. Healy has been elected vice president, construction, of the Kuljian Corp., Philadelphia.

His professional career includes more than 25 years experience in field and office administration of construction, and general supervision of a wide variety of projects. Before joining the Kuljian firm, he listed 13 years of construction management experience with Turner Construction Co., Keystone State Construction Co. and the Pennsylvania Railroad.

Mr. Healy is a graduate of Massachusetts Institute of Technology.



## Harold W. Chutter Retires From Western Pipe Group

What is probably the longest term of office as head of an important construction industry association will end this fall when Harold W. Chutter bows out as president of the Western Concrete Pipe Association after 26 years.

Mr. Chutter, who heads up Jourdan Concrete Pipe Co. of Fresno, Calif., was first elected president of the California Associated Concrete Pipe Manufacturers in 1931. In 1950 the California group became a regional association which now includes 90 pipe manufacturers operating 140 plants in 11

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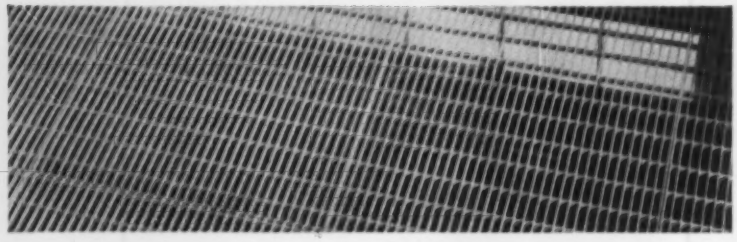

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western states, Alaska, and British Columbia. On his last re-election at the recent WCPA annual meeting, Chutter announced his resignation to take effect this fall.

The association under Mr. Chutter's leadership has worked to improve quality and, consequently, acceptance of its product. An example of wider use is the fact that now more than 50% of highway culverts being installed in California are concrete pipe as compared with 5% some years ago. Mr. Chutter was also president of the American Concrete Pipe Association in 1939 and 1940.

## Consulting Engineers Form Maryland Council

The Consulting Engineers Council of Maryland was formed at a recent organizational meeting in Baltimore attended by representatives of 29 Maryland consulting engineer firms. A Constitution and By-Laws was adopted by the group and officers were elected.

William R. Kahl of Rummel, Klepper & Kahl, was elected president and William G. Robertson, Jr., of Henry Adams, Inc., vice-president. Chosen as secretary was A. Russell Vollmer of Whitman, Requardt & Associates, and as treasurer, Robert E. McNeill of McNeill & Baldwin. Three directors also were elected.

The organization is a result of the combined efforts of all representatives acting on informal committees appointed by Temporary Chairman William Kahl at the initial meeting of the group in November, 1956.

The objectives of the council are to promote such activities as shall be beneficial to the public welfare and to the profession.

## Careers . . .

### Education

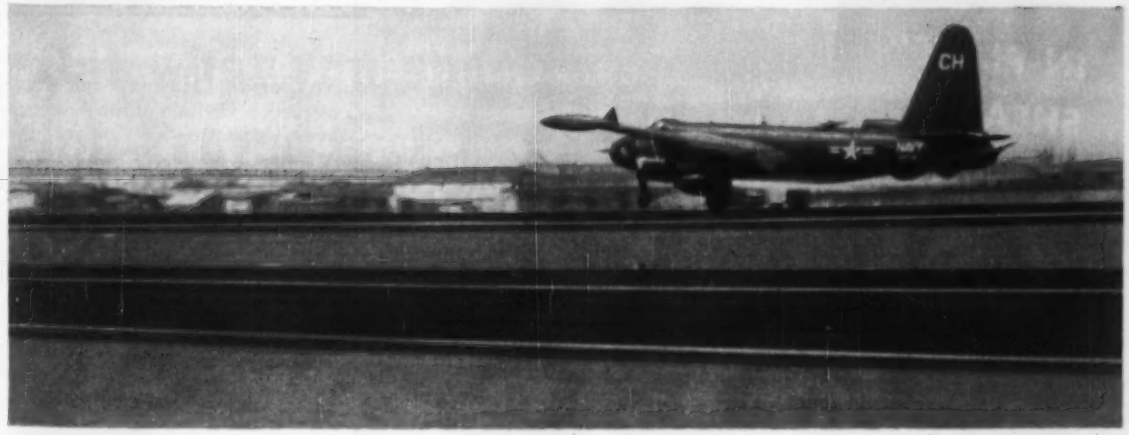
**Lynn S. Beedle** is promoted to full professorship in the department of civil engineering at Lehigh University.

### Associations

**Roger H. Gilman** is elected president, and **Michael N. Salgo** vice president, of the 3,700 member Metropolitan Section of the American Society of Civil Engineers. Mr. Gilman is director of port development of the Port of New York Authority; Mr. Salgo is principal assistant to the district civil engineer, Third Naval District Headquarters.

**George T. McDonald** will retire Aug. 1 as executive secretary of the Georgia State Highway Board—a position he has

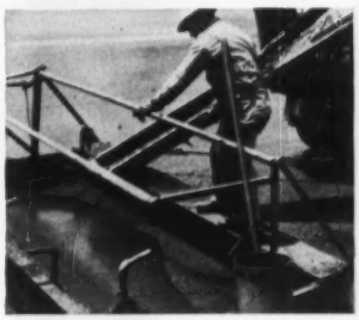
(Advertisement)



# *Navy gets double savings* with Bitumuls Slurry Sealing of Runways at Jet Training Station

ONE of the busiest military air installations on the entire West Coast is the Alameda Naval Air Station. In addition to heavy traffic in propeller-driven aircraft, Alameda is an important West Coast jet aircraft training center.

**Runway Construction**—The runways of this Naval Air Station are surfaced with asphaltic concrete, placed over a 6" course of Bitumuls Sand Mix. The wide shoulders adjacent to these runways are also Bitumuls RS-1 Chip Seal. The surfacing was placed some four years ago, and recently showed signs of weathering. Close



Bitumuls Slurry is chuted into spreader-box as mix-truck travels at speeds up to 5 MPH.

inspection disclosed some ravelling; minor hair-cracks on the surface; and some loose material. This loose material, while of little importance during the days of conventional-type aircraft, had become a major source of expense after jets started operating here. Sand, small stones, and other loose material can cause considerable damage, when scooped into the jet engines.

**A Dual Problem**—The Navy was looking for answers to two problems: First, a method of revitalizing the runways and extending the life of the pavement surface. Second, a means of cutting down the repair bills involved when jet engines were damaged by loose material scooped up from the surface of the runways. *They found a single answer to both these problems in Bitumuls Slurry Seal!*

Bitumuls Slurry Seal composed of fine, sharp aggregate, Bitumuls Mixing Grade emulsified asphalt and water, was mixed in transit-mix trucks to a free-flowing, slurry consistency. It was applied by the squeegee action of a spreader-box to 350,000 sq. yards of runway and taxi-way. Contract for this work was awarded to George Reed, a contractor from Modesto, California.

To offset the high abrasive action of the aircraft tires on landing, a dilute (3 to 1) Bitumuls tack coat was placed ahead of the Slurry Seal to insure maximum adhesion.

**Fast-Fast Application**—It was "business-as-usual" at the Air Station while this work was in progress. In spite of the additional requirement of the tack coat, Bitumuls Slurry Sealing reduced interference with air traffic to a minimum. Planes at the Station were able to taxi over the fresh seal coat four hours after application. Jet aircraft landed on the new seal 24 hours after application.

The costs involved in providing this new life for the existing runway pavement was considerably less than that of a normal seal coat application.

**"Meanwhile, at the Hangar..."** In the repair shops, an extra "bonus" economy will be realized because Bitumuls Slurry Seal has eliminated loose material from the runways. *The cost of mechanical repairs occasioned by the induction of foreign material through the jet engines is expected to be sharply reduced.*

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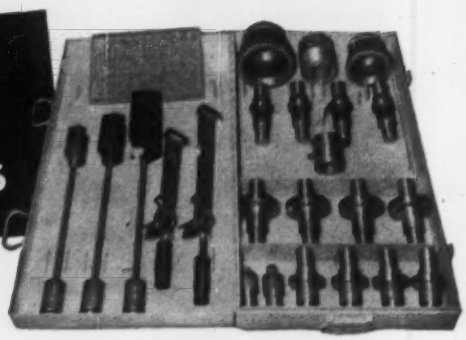

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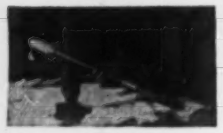

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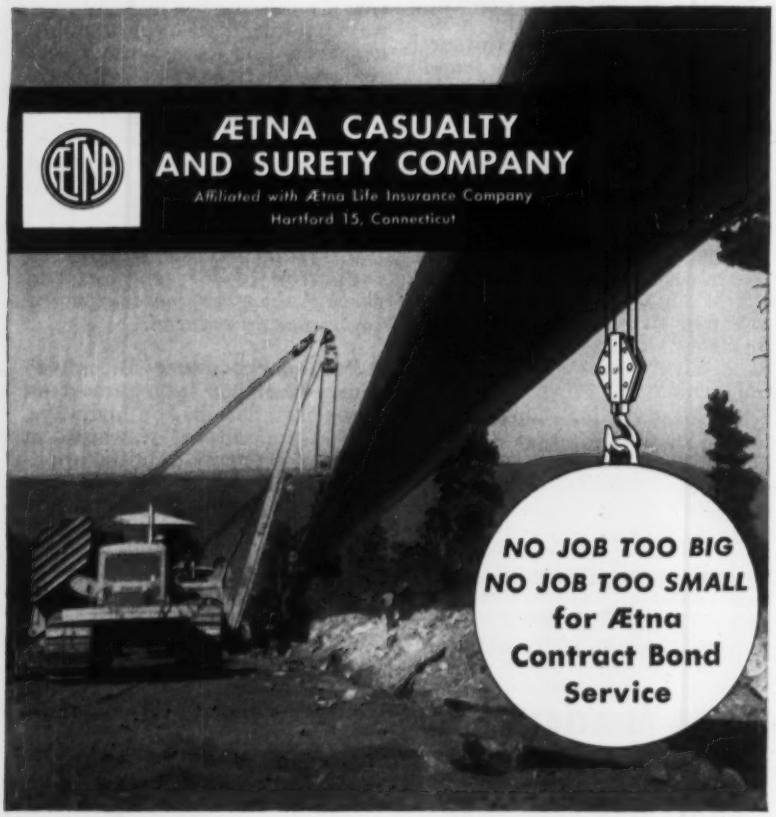

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held for the last 30 years—to become director of the Highway and Heavy Construction Division of the Associated General Contractors of America, Inc., in Atlanta.

### Business

**H. E. Richardson,** assistant division engineer for the Seaboard Air Line Railroad at Raleigh, N. C., since April, 1954, has been transferred to Savannah, in the same capacity. He received his civil engineering degree from North Carolina State College in 1950, and was made assistant division engineer in 1952.

**William J. Kernan** has been appointed district engineer for the Eastern District of the New York Central Railroad, Syracuse, N. Y. He was a former division engineer in Albany.

**Marshall McCord** has been named Chief Civil Engineer and **Robert Czaban,** Head of the Highway Section for Green Associates, Inc., Consulting Engineers, of Baltimore.

**John H. Tiernan,** vice president of P. T. Cox Construction Co., of New York, for more than 20 years, has moved to the Foundation Co., of New York, as assistant to the president.

**Robert L. Morris,** a former senior city planner for the City of Baltimore, has formed his own consulting firm in Baltimore for the general practice of civil engineering.

### Government

**Lawrence G. Mohr,** division of construction and supply, U. S. Atomic Energy Commission, Washington, D. C., is now assistant division director for construction and engineering, as well as chief of the construction branch. He succeeds **William K. Maher,** who is deputy director of the division.

**Davison Sutherland,** deputy engineer of the city of Toronto, is appointed city engineer, succeeding **Clement Edwards,** who has retired.

**Alexander H. Nicolson,** formerly assistant city engineer, Calgary, Alberta, is named city engineer. He succeeds **E. C. Thomas,** now a commissioner.

**Joseph C. Patterson,** former area engineer at Gavins Point Dam in South Dakota, is appointed resident engineer at the Corps of Engineers Hills Creek dam project on the Middle Fork Willamette River in the Portland, Ore., district. He replaces **Roy M. Cami,** recently transferred to the Tulsa, Okla., district of the Corps of Engineers.

**Ralph C. Bunnell,** until recently a heliport construction specialist for the Corps of Engineers, has been appointed to fill the vacant post of district engineer for the Asphalt Institute at Albany, N. Y. In another announcement, the

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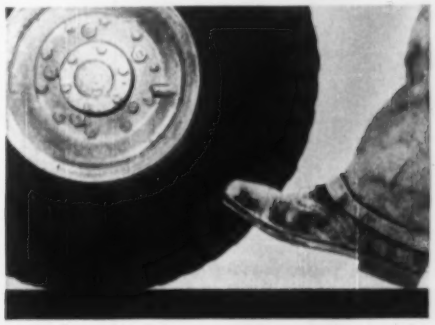

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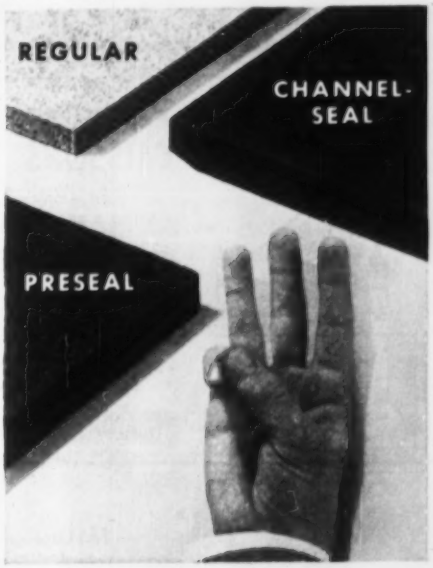


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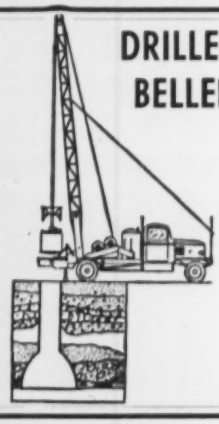

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## . . . Men and Jobs

Institute said that **Aubrey M. Tinder, Jr.**, of Richmond, formerly asphalt paving engineer for the Virginia Department of Highways, has become district engineer for the Institute at Atlanta.

**Frank Carlson,** surveyor-draftsman, has been named acting city manager of Kingsford, Mich. Mr. Carlson, who has been in the city engineering department for the last 11 years, succeeds **James Cummings**, who resigned.

**Col. George E. White, Jr.,** retired from active duty upon completion of a three year tour as St. Louis district engineer, Corps of Engineers. **Col. Charles B. Schweizer** will take over the St. Louis post shortly, when he returns from Korea. In the interim, **Col. Carl M. Sciple** is acting district engineer.

**R. B. Winfrey,** maintenance engineer for the Oklahoma Highway Department, has been named to replace **A. G. Rives** as Arkansas maintenance engineer in July.

**Knut H. Jensen** has been appointed chief bridge engineer for the Pennsylvania Highways Department. Since 1949 he has been bridge engineer for the Pennsylvania Turnpike Commission in charge of design and construction. Mr. Jensen received his engineering B.S. and M.S. degrees in Copenhagen.

**Donald E. Stein**, district engineer for the Washington State Highway Department for the last six months, has been transferred to a similar position at Spokane, to succeed the late **T. R. Ross.** A graduate of Washington State College, he has worked for the department since 1924. **Ray H. Pyle**, formerly Mr. Stein's assistant, has been appointed Yakima district engineer.

**John C. Walker**, city engineer at Asheville, N. C., since 1940, has been appointed engineer in charge of a new $2.2 million municipal airport project, and **P. Greer Johnson, Jr.**, former project engineer in the street department, has been named city engineer. **W. F. Wolcott, Jr.**, of the city engineer's staff, has been named Mr. Walker's assistant on the airport project.

**W. A. Bostic, Jr.**, who has been serving as sanitary department superintendent for Asheville, N. C., has been named superintendent of streets, and **J. R. McMahan**, assistant superintendent of the sanitary department, has been moved up to the post of superintendent.

**John Schaub,** special assignment engineer of the Michigan State Highway Department, has been named to the staff of the Michigan Municipal League. He will supervise highway research and assist municipal officials in development of state road programs.

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AND, THERE'S ANOTHER SIDE TO THIS "COMPOSITE MAN," another complete news service which complements the editorial section of this magazine — the advertising pages. It's been said that in a business publication the editorial pages tell "how they do it" — "they" being all the industry's front line of innovators and improvers — and the advertising pages tell "with what." Each issue unfolds an industrial exposition before you — giving a ready panorama of up-to-date tools, materials, equipment.

SUCH A "MAN" IS ON YOUR PAYROLL. Be sure to "listen" regularly and carefully to the practical business information he gathers.

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# Obituaries

**Frank G. Cox,** 77, retired civil engineer, died May 29 in Wilmington, Del. He graduated from Massachusetts Institute of Technology as a civil engineer and first worked for Otis Elevator Co. Later he joined the Edge Moor Iron Works in Wilmington, then returned to Otis.

**J. Milton Dyer,** architect, died in Cleveland May 27. Mr. Dyer was a graduate of Case Institute of Technology and studied at Ecole des Beaux Arts in Paris. Among the buildings he designed are the Cleveland City Hall, U.S. sub-Treasury in San Francisco and the Cleveland Athletic Club.

**August G. Sperl,** 65, president of Sperl, Gowen & Gregory, Inc., New York City construction contractors and engineers, died June 4. Projects on which Mr. Sperl had worked include early subway construction in lower Manhattan, Rockefeller Center and the Federal Building at 90 Church St. He was associated with the foundation work for the U.S. Naval Hospital in St. Albans, Queens, and the New York University Law School in Washington Square.

**William J. Van London,** 69, designer of the Gulf Freeway, died June 1 of injuries sustained in an auto accident. He had served 32 years with the Texas State Highway Department. His biggest single job was the Gulf Freeway, which has been termed the state's largest road project. Other projects he had worked on include the Eastex Freeway, the La Porte Cutoff and the extension of the Gulf Freeway across Buffalo Bayou.

**Roy S. Lyon,** 66, retired civil engineer, died May 24 in Syracuse, N. Y. He was a graduate of Case Institute of Technology and had worked on construction projects in central New York for more than 30 years.

**Howard L. West, Sr.,** 51, vice president and chief engineer of B. G. Coon Construction Co., Luzerne, Pa., died April 14. Previously he had been affiliated with Lehigh Valley Coal Co., U. S. Engineers and H. K. Ferguson Co. of Cleveland.

**Andrew C. Flinn,** a retired engineer for E. I. du Pont de Nemours and Co., died May 31 in Naples, Fla. At the time of his retirement he was working on nuclear energy design for the Atomic Energy Commission. He also had served as assistant design project manager of the du Pont polychemicals section until his assignment to atomic energy work.

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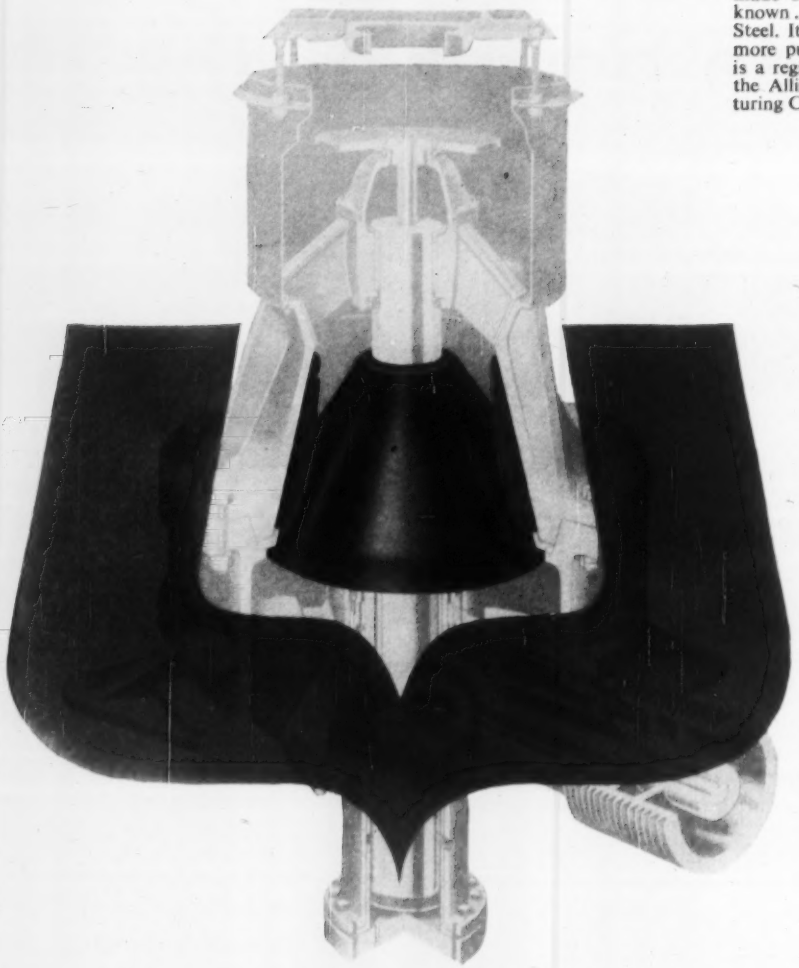
TORQMATIC DRIVES

Concave ring and mantle of this *Hydrocone* crusher are made of the toughest steel known . . . Amsco Manganese Steel. It *gives* a little, to take more punishment. *Hydrocone* is a registered trade-mark of the Allis-Chalmers Manufacturing Company.



# How a little give adds a lot of life to AMSCO CRUSHER PARTS

Both mantle and concave ring crush a lot more feed because of certain properties of Amsco® Manganese Steel. The metal *gives* a little under crushing forces, absorbs stresses, resists cracking and chipping. Yet these same forces work-harden the surface of Amsco Manganese Steel to as much as 500 Brinell . . . a high hardness, stubborn to wear.

Amsco Manganese Steel Crusher Parts maintain their ductile undersurface and work-hardened surface even when worn thin. That's why Amsco parts endure severe abuse for so many work hours without letup.

To be sure of getting Amsco Manganese Steel, order replacement parts from your crusher manufacturer. Amsco makes manganese steel parts for most manufacturers of crushing, grinding and pulverizing equipment.

*Amsco also produces other alloy steels with maximum wear resistance under particular service conditions*

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division • Chicago Heights, Ill.

OTHER PLANTS IN: DENVER, LOS ANGELES, NEW CASTLE, DEL., OAKLAND, CAL., ST. LOUIS, JOLIETTE, QUEBEC

# Unit Prices

## Seattle Pier Apron Rebuilt

This new timber apron, 50 ft by 693 ft, will widen Seattle's Pier 48 at the foot of Main Street from the present 32 feet to provide for a double line of railroad tracks and a 50-ton gantry crane. G. T. Treadwell is Chief Engineer for the Port of Seattle, which awarded to Manson Construction & Engineering Company, Seattle, the $501,850 contract for ripping out old material, salvaging what could be reused and disposing of the balance off the site.

In addition to apron work the interior of the existing pier will be redriven as necessary. Pile drivers and floating cranes will handle the job.

Prevailing wages include: carpenters $2.94, foremen $3.19, carpenters on creosoted material $3.04, boommen $3.09, piledrivers $3.04, foremen $3.34. An additional 10 cents an hour health and security fund payment applies to all trades.

This is how the bidding ran:

| | |
|---|---|
| 1C Manson Constr & Engr Co., Seattle, Wash | $501,850 |
| 2 General Construction Co., Seattle, Wash | 510,794 |
| 3 Larsen Construction Co., Seattle, Wash | 523,283 |
| EE Chief Engineer, Port of Seattle | 500,000 |

| Bids: 3-21-57<br>Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Remov & dispose: old matl, except RR trk & piling bearing & brace piles, or salvage | ls | job | $11,000 | $17,600 |
| Provide 1625 new creos bear piles 50-85 ft long under cut-off | ea | 680 | 11.00 | 19.40 |
| Drive: new or salv bear piles under transit shed | lf | 120,000 | 1.57 | 1.55 |
| | ea | 1,360 | 14.00 | 16.50 |
| Provide stub pile bent, incl salv stubs, new creos sill & conc pad in place | ea | 265 | 70.00 | 46.20 |
| | ls | job | 1,000 | 885.00 |
| **Fender Piles** | | | | |
| Remov & disp or salv | ea | 165 | 10.00 | 16.50 |
| Provide new creos 60-80 ft long under cut-off | lf | 7,500 | 1.65 | 1.56 |
| Drive new or salv incl hardware & fastng | ea | 200 | 20.00 | 18.30 |
| **Timber Deck** | | | | |
| Apron framing, incl pile blocking, caps, stringers, decking, bullrails, corners incl hardware | ls | job | 150,000 | 157,500 |
| Deck under transit shed | fbm | 3,000 | 435.00 | 358.00 |
| Draft curtain extension & repair incl hardware | fbm | 16,000 | 320.00 | 245.00 |
| Misc steel in pl incl floor angles at doorways, install salv cleats, steel deck drns | ls | job | 11,000 | 5,900 |
| **Miscellaneous** | | | | |
| Bldg col repair incl column stubs, splices, hrdwre | ea | 44 | 70.00 | 110.00 |
| Sheet metal cap gutters & repair exist shed sheath & door cov | ls | job | 4,300 | 4,080 |
| New ramp entrance to transit shed, framing & alterations | ls | job | 6,600 | 8,050 |
| Door & partition alterns | ls | job | 21,000 | 21,500 |
| Paving, asph conc | ls | job | 16,000 | 15,800 |
| Chain link fence, rem & salv | ls | job | 200 | 107 |
| Ship hydrants, rem, repl, extend & recondition incl met covers & hatches & necessary water piping & insulation | ls | job | 1,750 | 1,610 |
| Sprinkler sys, extend automatic under-deck, enlarge & recondition | ls | job | 18,000 | 16,000 |

Completion time: 150 calendar days

## Louisville, Kentucky, Extends Main Sewer

This combined storm and sanitary sewer with 2,775 lin ft of reinforced concrete pipe in rock and earth excavation will cost $189,917. Earth excavation and other construction exclusive of the items shown account for 73% of this price. Mill Creek Main Sewer Extension is for the Louisville & Jefferson County Metropolitan Sewer District in Louisville, Ky. Morris Forman, Louisville, is the engineering consultant.

Contractor Charles E. Cannell Co., Louisville, underbid the nearest competitor by 4.3% and the high fifth bidder by 15%.

Reinforced concrete culvert, mainly of 54 in. diameter pipe but ranging down to 24 in., is placed on gravel cradle in rock excavation. Pipe, 6 in. to 36 in. in diameter, is on class D and class A concrete cradle in earth excavation.

Scheduled wage rates are $2.13 for unskilled labor, $2.33 for air tool operators, $2.34 for pipe layers, $2.26 to $2.66 for truck drivers, $2.30 to $3.15 for operating engineers and $3.30 for pipe fitters.

Bidders include:

| | |
|---|---|
| 1C Charles E. Cannell Co., Louisville, Ky | $189,917 |
| 2 Edgar H. Hughes Co., Inc. Jeffersonville, Ind. | 198,358 |
| 3 Morrison & Conklin Constr. Co., Inc., Louisville, Ky | 224,617 |

| Bids: 3-6-57<br>Items | Unit | Quantity | Unit Prices 1C | 2 |
|---|---|---|---|---|
| Excavation, earth etc | ls | job | $139,000 | $140,221 |
| rock etc | cy | 1,900 | 19.50 | 20.00 |
| Shattering rock | vf | 50 | 1.00 | 10.00 |
| Cradle, grav, in rock exc, RCP, 54" | lf | 1,950 | 2.00 | 3.00 |
| 36" | lf | 10 | 1.75 | 2.50 |
| 33" | lf | 230 | 1.50 | 2.50 |
| 30" | lf | 10 | 1.50 | 2.40 |
| 27" | lf | 10 | 1.25 | 2.20 |
| 24" | lf | 10 | 1.25 | 2.00 |
| Cradle, conc, cl D, RCP 36" | lf | 10 | 3.50 | 7.00 |
| 33" | lf | 50 | 3.00 | 6.00 |
| 30" | lf | 10 | 3.00 | 5.00 |
| 27" | lf | 10 | 2.75 | 4.00 |
| 24" | lf | 10 | 2.50 | 3.50 |
| 15" | lf | 20 | 2.25 | 2.50 |
| 12" | lf | 100 | 2.00 | 2.25 |
| 8" | lf | 10 | 1.75 | 2.00 |
| 6" | lf | 100 | 1.50 | 1.50 |
| cl A, RCP 27" | lf | 15 | 5.50 | 11.00 |
| 24" | lf | 10 | 5.00 | 10.00 |
| 15" | lf | 20 | 4.50 | 7.00 |
| 12" | lf | 30 | 4.00 | 6.00 |
| 8" | lf | 10 | 3.50 | 5.00 |
| 6" | lf | 150 | 3.00 | 4.00 |
| Drop inlets, pipe 15" | vf | 20 | 12.00 | 20.00 |
| 12" | vf | 20 | 10.00 | 13.00 |
| 8" | vf | 30 | 6.00 | 10.00 |
| 6" | vf | 150 | 5.00 | 8.00 |
| Property service connection pipe 15" | lf | 40 | 7.50 | 7.00 |
| 12" | lf | 340 | 6.00 | 6.00 |
| 6" | lf | 350 | 3.00 | 4.00 |
| Bulkheads, brick, 2-12" | ls | job | 100.00 | 175.00 |
| Connection, CMP, 24" | lf | 15 | 5.00 | 10.00 |
| Refill, below subgr grav | t | 20 | 5.00 | 5.00 |
| cr stone | t | 20 | 5.00 | 5.00 |
| conc, cl D | cy | 10 | 20.00 | 20.00 |
| Concrete, cl D | cy | 10 | 20.00 | 45.00 |
| Catch basin, precast conc | ea | 17 | 125.00 | 175.00 |
| Flush & jet backfill etc | lf | 900 | 0.20 | 0.50 |
| Cement added | sack | 1 | 1.50 | 1.50 |
| Pipe, 54", furn & jest | ea | 2 | 82.50 | 82.50 |

| | | |
|---|---|---|
| Data of completion: | Charles E. Cannell Co | 10-31-57 |
| | Edgar H. Hughes Co., Inc | 11-15-57 |
| | Morrison & Conklin Const | 9-15-57 |


From our 50th Anniversary Album

WILLIAMSBURGH BRANCH LIBRARY, Brooklyn
This building was underpinned and shored to permit construction of new Brooklyn-Queens Expressway 25 feet under and through building wing.
Frank Mascali & Sons, Inc., General Contractors; Lockwood, Kessler & Bartlett, Inc., Engineers; N. Y. State Dept. of Public Works, Owner.

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Utility Supply Co.
641 W. Lake St.
Chicago 6, Ill.
Dept. ENR

# Materials and Labor Prices

**Monthly Market Quotations by ENR Field Reporters**

**See following ENR issues for OTHER PRICES:**

- Clay Products, Lime, Plaster, Paint, Roofing: Last, May 30; Next June 27.
- Wage Rates, Building Board, Lath, Insulation: Last, May 30; Next June 27
- Cement Aggregates, Ready-mixed Concrete, Asphalt: Last, June 6; Next July 4.
- Iron & Steel Products, Pine: Last, June 13; Next July 11.

## LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

### SOUTHERN PINE AND DOUGLAS FIR

**All Southern Pine is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)**

*All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft. (Prices in italics)*

| | | 1x6 s4s | 1x8 s4s | 2x4 s4s | 2x6 s4s | 2x8 s4s | 2x10 s4s | 3x12 Rgh | 6x12 Rgh | 12x12 Rgh |
|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | † | **$83.00** | **$88.00** | **$77.50** | **$76.00** | **$87.00** | **$95.00** | **$150.00** | ..... | ..... |
| Baltimore | * | **92.00** | **96.00** | **96.00** | **98.00** | **98.00** | **102.00** | **114.00** | ..... | ..... |
| | | *97.50g* | *105.00g* | *125.00g* | *125.00g* | *125.00g* | *125.00g* | *135.00g* | *$144.00* | *$144.00* |
| Birmingham | † | **87.00** | **89.00** | **82.00** | **89.00** | **92.00** | **97.00** | **112.00** | ..... | ..... |
| | | *108.50* | *108.50* | *106.00* | *108.00* | *108.00* | *115.00* | *111.50* | *108.50* | *108.50* |
| Boston | † | **99.00***f* | **99.00***f* | **105.00***f* | **105.00***f* | **105.00***f* | **116.00***a* | ..... | ..... | ..... |
| | | *97.00m* | *97.00m* | *114.00* | *114.00* | *114.00* | *120.00* | *125.00* | *120.00* | *135.00* |
| Chicago | ** | **94.00** | **97.00** | **91.00** | **105.00** | **113.00** | **114.00** | **109.00** | ..... | ..... |
| | | *105.00* | *105.00* | *118.00* | *116.00* | *116.00* | *117.00* | *125.00* | *125.00* | *125.00* |
| Cincinnati | * | **98.00** | **97.25** | **87.00** | **93.25** | **98.00** | **108.00** | **119.50** | ..... | ..... |
| | | *98.25* | *99.50* | *104.00* | *106.00* | *107.00* | *110.50* | *132.00* | *132.00* | *132.00* |
| Cleveland | ** | **94.00** | **95.00** | **99.00** | **97.00** | **97.00** | **97.00** | ..... | ..... | ..... |
| | | | | *116.00* | *108.00* | *108.00* | *108.00* | *150.00* | *150.00* | *150.00* |
| Dallas | ‡† | **68.00** | **70.00** | **65.00** | **65.00** | **65.00** | **70.00** | **135.00** | ..... | ..... |
| Denver | * | *Not in stock* | | *121.50* | *121.50* | *121.50* | *120.00* | *140.00* | *147.50* | *152.50* |
| Detroit | ‡ | **116.50** | **119.50** | **114.00** | **117.00** | **122.00** | **127.00** | ..... | ..... | ..... |
| | | *125.00* | *125.00* | *130.00* | *132.50* | *130.00* | *135.00* | *185.00* | *195.00* | *195.00* |
| Kansas City | * | **120.00** | **120.00** | **120.00** | **120.00** | **120.00** | **135.00** | ..... | ..... | ..... |
| | | *120.00* | *120.00* | *120.00* | *120.00* | *120.00* | *150.00* | *165.00* | *185.00* | *210.00* |
| Los Angeles | ‡ | *95.00* | *95.00* | *95.00* | *95.00* | *95.00* | *95.00* | *119.00* | *130.00* | *130.00* |
| Minneapolis | # | *185.00* | *185.00* | *140.00* | *140.00* | *140.00* | *140.00* | *185.00* | *185.00* | *185.00* |
| Montreal | *ab* | **94.00** | **103.00** | **94.00** | **95.00** | **113.00** | **130.00** | ..... | ..... | ..... |
| | | *180.00* | *180.00* | *180.00* | *180.00* | *180.00* | *180.00* | *171.00* | *171.00* | *171.00* |
| New Orleans | † | **87.00** | **87.00** | **91.00** | **91.00** | **90.00** | **97.00** | **121.50** | ..... | ..... |
| | ‡ | *110.00* | *110.00* | *106.50* | *120.00* | *120.00* | *120.00* | *152.50* | *152.50* | *152.50* |
| New York | † | **108.00** | **109.00** | **117.00** | **118.00** | **118.00** | **124.00** | ..... | ..... | ..... |
| | | | | *118.00* | *120.00* | *121.00* | *122.00* | *165.00* | *165.00* | *165.00* |
| Philadelphia | ‡ | ..... | Range from $117.00 to $137.00 | | | | **147/137** | **117/137** | ..... | ..... |
| | | | *Range from $151.00 to $165.00* | | | | *151/165* | *150/158* | *165.00* | *165.00* |
| Pittsburgh | 2 | **130.00** | **140.00** | **130.00** | **155.00** | **140.00** | **145.00** | ..... | ..... | ..... |
| | | *180.00* | *140.00* | *180.00* | *155.00* | *140.00* | *145.00* | ..... | *200.00* | *200.00* |
| St. Louis | # | **118.00** | **120.00** | **128.00***d* | **128.00***d* | **128.00***e* | **133.00***e* | ..... | ..... | ..... |
| | | ..... | ..... | *135.00* | *135.00e* | *135.00e* | *139.00e* | *195.00e* | *195.00* | *195.00* |
| San Francisco | *A* | *81.00* | *81.00* | *84.00* | *84.00* | *84.00* | *84.00* | *117.00* | *125.00* | *132.00* |
| Seattle | † | *68.00* | *73.00* | *73.00* | *73.00* | *73.00* | *74.00* | *90.00* | *90.00* | *95.00* |
| Toronto | *a* | **98.00** | **100.00** | **95.00** | **98.00** | **100.00** | **100.00** | ..... | ..... | ..... |
| | | *114.00* | *114.00* | *120.00* | *122.00* | *126.00* | *130.00* | *145.00* | *140.00* | *150.00* |

| LONG LEAF Y. P. Merchantable grade up to 20 ft. | | PLYWOOD Rail freight increment (See note for base price) | |
|---|---|---|---|
| 2x12 Rgh | 12x12 Rgh | ¼" | ¼" |
| $110.00 | ..... | $22.32 | $27.24 |
| 170.00 | $185.00 | 25.92 | 31.60 |
| ..... | ..... | ..... | ..... |
| 115.00 | 160.00 | 21.78 | 26.58 |
| ..... | ..... | 25.92 | 31.60 |
| ..... | ..... | ..... | ..... |
| 137.00 | 137.00 | 22.45 | 27.37 |
| ..... | ..... | ..... | ..... |
| 141.75 | 141.75 | 25.00 | 30.48 |
| ..... | ..... | 25.37 | 30.93 |
| ..... | ..... | ..... | ..... |
| 130.00 | 125.00 | 18.72 | 22.80 |
| ..... | ..... | 13.92 | 16.98 |
| 130.00 | ..... | 25.00 | 30.48 |
| ..... | ..... | ..... | ..... |
| ..... | ..... | 16.56 | 20.16 |
| ..... | ..... | 16.61*ab* | 20.25*ab* |
| ..... | ..... | 19.89 | 24.25 |
| 125.00 | 125.00 | ..... | ..... |
| ..... | ..... | ..... | ..... |
| 151.00 | 151.00 | 18.72 | 22.80 |
| ..... | ..... | ..... | ..... |
| 240.00 | 255.00 | 25.92 | 31.60 |
| ..... | ..... | ..... | ..... |
| 214/224 | 214/224 | 25.92 | 31.60 |
| ..... | ..... | ..... | ..... |
| 155.00 | ..... | 25.92 | 31.60 |
| ..... | ..... | ..... | ..... |
| ..... | ..... | 18.72 | 22.80 |
| ..... | ..... | ..... | ..... |
| ..... | ..... | 12.22 | 14.91*a* |
| ..... | ..... | ..... | ..... |
| 102.00 | ..... | ..... | ..... |
| ..... | ..... | ..... | ..... |

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. sad., truckload lots. 8/6 Mflbm.

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. *a Spruce. *b Tax exempt. *c 5M lots. *d 8, 10, & 12 ft. lengths. *e 8 to 16 ft. lengths. *f Hemlock *g No. 1 common. *j 8ft. lengths. *k No. 3 common. *n #3. A incl rail rate from North west mills to San Francisco are $11.80 to $18.00 per M ft. bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Interior Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $152.00; on ¼", $170.00. Exterior ¼", $156.00, ¼", $174.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a Lower rate by water shipment. *b 80,000 lb. minimum.

## GLASS, EXPLOSIVES, CHEMICALS

| | WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950a Single or Double Strength A quality | WINDOW GLASS: B quality | EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots* |
|---|---|---|---|
| Atlanta | 78%*c* | 78%*e* | $0.2540 |
| Baltimore | 74%*d* | 76%*d* | .2540 |
| Birmingham | 82% | 83% | .1990 |
| Boston | 73-10% | 72-10% | .2540 |
| Chicago | 72% | 72% | .2540 |
| Cincinnati | 74% | 74% | .2540 |
| Cleveland | 74-2-10% | 74-2-10% | .2940 |
| Dallas | 78% | 78% | .2615 |
| Denver | 73% | 73% | .2590 |
| Detroit | 74-10-10% | 74-10-10% | .2540 |
| Kansas City | 78-10% | 78-10% | .2590 |
| Los Angeles | 70% | 76% | .2565 |
| Minneapolis | 71-10% | 71-10% | .2590 |
| Montreal | 40-10-5%*bc* | 40-10-5%*b* | 22.05*h* |
| New Orleans | 75% | 76% | .2590 |
| New York | 79-10% | 79% | .4425*g* |
| Philadelphia | 74-10% | 76-10% | .2540 |
| Pittsburgh | 73% | 73% | .2540 |
| St. Louis | 72-10-10% | 72-10-10% | .2590 |
| San Francisco | 60% | 72% | .2540 |
| Seattle | 67% | 70% | .2565 |

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Glass: *a Jobbers' list price per box, 14 x 20, as, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c 77% for single strength *d Discount 6/15/52. *e 77% for double strength

Explosives: * Cartridges of 1¼", 1½", 1¾", 2", 2¼", 2½", 3" diameters. Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h F.o.b Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.80

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

| | C/L 20,000 lb. net | Tons | 200 lb. lots |
|---|---|---|---|
| E. of the Miss., except Fla. and Me. | $0.1990 | $0.2340 | $0.2540 |
| W. of Miss. to Rocky Mtn. States, Fla. and Maine | .2040 | .2390 | .2590 |
| Rocky Mtn. States | .2040 | .2390 | .2590 |
| Pacific N. W. States | .2015 | .2365 | .2565 |
| Pacific S. W. States | .1990 | .2340 | .2540 |

## PILES, TIES F.O.B.

### PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

| Dimensions | Points | Length | By Rail: Pine* | By Rail: Fir |
|---|---|---|---|---|
| 12-in. at butt | 6-in. | 30 to 50-ft. | $0.51 | .... |
| 12-in.—2-ft. from butt | 6-in. | 50 to 59-ft. | .54 | .... |
| 12-in.—2-ft. from butt | 6-in. | 60 to 69-ft. | .58 | .... |
| 12-in.—2-ft. from butt | 6-in. | 90 to 100-ft. | .... | .... |
| 13-in.—3-ft. from butt | 8-in. | 91 to 100-ft. | .... | .... |
| 14-in.—2-ft. from butt | 6-in. | 50 to 69-ft. | .80/.88 | .... |
| 14-in.—2-ft. from butt | 6-in. | 70 to 79-ft. | .78/.88 | .98 |
| 14-in.—2-ft. from butt | 8-in. | 80 to 85-ft. | .83/.93 | .94 |
| 14-in.—2-ft. from butt | 8-in. | 85 to 89-ft. | .... | 1.00 |
| 14-in.—2-ft. from butt | 8-in. | 90 to 100-ft. | .... | 1.03 |

* Pine piling over 80-ft. available only in limited quantities

### RAILWAY TIES

Prices f.o.b. per tie for carload lots:

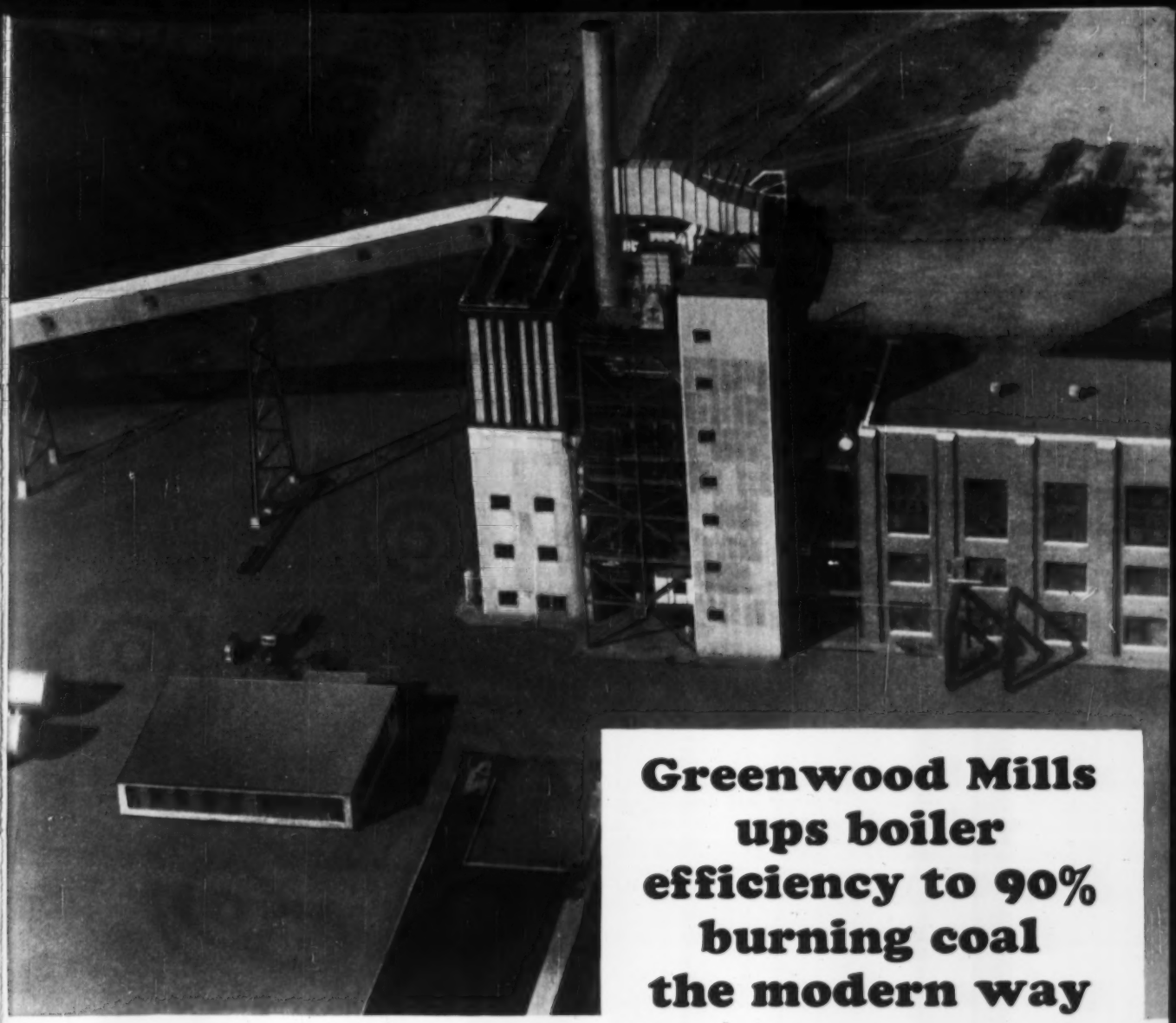
| | | 8" x 8" x 8' Untr. | 8" x 8" x 8' Tr. | 7" x 9" x 8'6" Untr. | 7" x 9" x 8'6" Tr. |
|---|---|---|---|---|---|
| Birmingham* | Hardwood, Grade 3 | $1.70 | $2.55 | Gr. 5 $2.25 | $3.33 |
| | Grade 2 | 1.50 | 2.35 | " 4 2.10 | 3.18 |
| | Grade 1 | 1.15 | 2.00 | " 3a 1.70 | 2.78 |
| Chicago | Red Oak | ..... | 4.00*a* | ..... | 4.60*a* |
| New York | S. L. Sap Pine | 2.00*d* | 4.00*d* | 3.00*g* | 6.00*g* |
| | Mixed Oak | 2.50*d* | 4.50*d* | 3.50*g* | 6.50*g* |
| Philadelphia | Red Oak | 2.95/3.15 | 4.50/4.70 | 3.60/3.80 | 5.50/5.75 |
| St. Louis | White Oak | 2.65 | ..... | 2.95 | ..... |
| | Red Oak | 2.55 | 3.25*a* | 2.80 | 3.60*a* |
| San Francisco | Douglas Fir | 2.03*ef* | 2.96*ef* | 2.84*baf* | 4.31*caf* |

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell *d* 6 x 8 x 8'6" *e* Green. *f* f.o.b. cars. *g* 7 x 9 x 8'6" * Add 75¢/tie freight charge to Birmingham.

### CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

| | |
|---|---|
| Bleaching powder in drums f.o.b. works, per 100 lb. | $5.02 |
| Chlorine cylinders, liquid, per lb. f.o.b. works | .103 |
| Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton | 29.00 |
| Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb. | 2.30 |
| Soda ash, 58%, in paper bags, per 100 lb. dense | 1.70 |
| Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works | 1.85 |
| Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works | 14.90 |



# Greenwood Mills ups boiler efficiency to 90% burning coal the modern way

## Consult an engineering firm

Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities—or the remodeling of an existing installation—one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

## *facts* you should know about coal

In most industrial areas, bituminous coal is the lowest-cost fuel available • Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar • Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use • No smoke or dust problems when coal is burned with modern equipment • Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

When its original power plant could not keep up with growing steam demand, Greenwood Mills, Greenwood, S. C., studied the problem and decided to replace the old facilities.

Greenwood's engineering and construction departments, working with Consulting Engineer Frank Hill of Greenville, designed and built a completely modern power plant. It features a pressurized 300,000 lb./hr. boiler equipped with two cyclone furnaces burning ¼" x 0" coal. Automatic throughout—from coal conveyors to pneumatic combustion control to hydraulic ash handling—the system is manned by a minimum of operators. Burning coal the modern way has resulted in a trouble-free boiler plant operating at a combustion efficiency of 90% or better.

*For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.*

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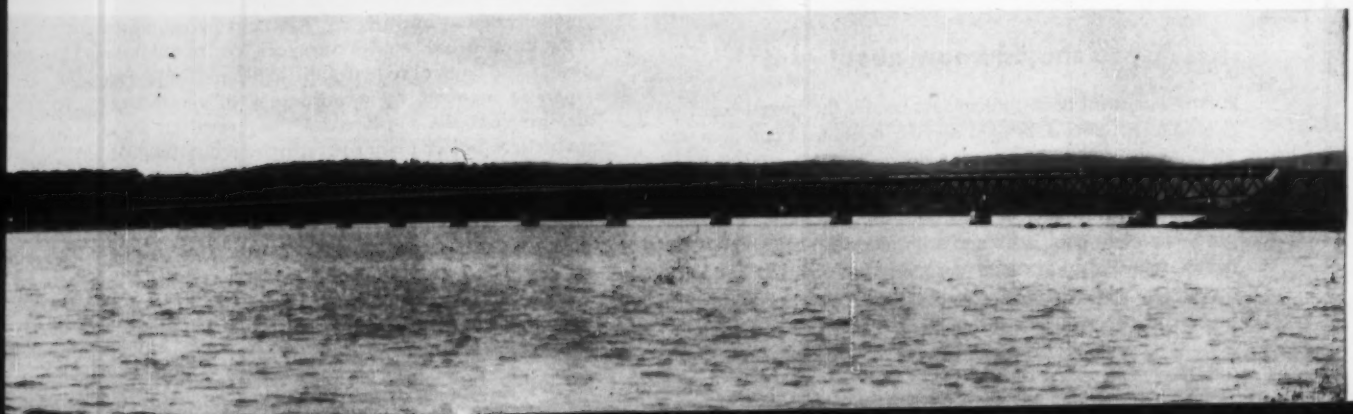
DALLAS (1)..1219 Praetorian Bldg.
SEATTLE.....522 Lane Street
SANTA CLARA, CAL.621 Alviso Road



# Bids Asked—Low Bidders—Contracts Awarded—First Section—

*Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager*
*J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, S. N. NOLAN, Reports*
*J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.*

## NEW ENGLAND

### BUILDINGS—BA

▲ **R. I., Warren**—SCHOOL—BA 6/24—Town, School Comn., Warren, high school, Child St. $1,200,000. Plans deposit $100. William O'Rourke, 90 Union St., Archt. CD 1/16.

▲ **R. I., Exeter**—EDUCATIONAL, etc.—BA 6/26—State R. I. & Prov. Plants, Div. Purchase, State House, Providence, Bid 982-983, 984 and 985, Proj. EXE 4, educational and recreational bldg. $1,000,000. Plans deposit $25. Creer, Kent, Cruise & Aldrich, Industrial Bank Bldg., Providence, archts. Extended date.

### HEAVY CONSTRUCTION—LB & CA

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., State House Annex, Concord

**R. G. Watkins & Sons Inc.,** Mill Yard, Amesbury, Mass., LB **$1,012,100,** est. $1,000,000. b. conc. hy. 4-lanes, 1.42 mi. and 2 steel beam bridges 147 ft. and 169 **ft. in length, Concord. Bids June 7. CD 5/31.**

▲ **CONNECTICUIT**—State Hy. Dpt., 165 Capitol Ave., Hartford,

**N. Benrenuti & Sons,** 16 Elm St., New London, Conn. LB **$1,130,649.** (2 bidders) Proj. 103-68, precast, prestressed bridge over railroad and single span plate girder bridge over Shetucket River at Laurel Hill and HTT b. conc. approaches on Route 12, Fed. Aid Proj. U-UG-122, Norwich. Bids June 3. CD 5/16.

▲ **R. Zoppo Co., Inc.,** 842 Providence Hy., Norwood, Mass. LB **$1,280,655.** (18 bidders) 36-in. water pipe line from White Bridge Pumping Station, Bristol to Wooster St., New Britain, Bristol, New Britain and Plainville, NEW BRITAIN, CONN. City, City Hall, New Britain, Conn. Bids June 3. CD 5/31.

### BUILDINGS—LB & CA

▲ **Park Constr. Co., Inc.,** 40 Court St., Boston, Mass., LB **$1,252,000,** E-403 DORMITORY BLDG., State Teachers College, FITCHBURG, MASS. Commonwealth of Mass., Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids June 6, CD 5/16.

▲ **James S. Kelliher,** 1245 Hancock St., Quincy, Mass. CA **$1,489,178.** Atlantic Jr. HIGH SCHOOL Hollis Ave., QUINCY, MASS. City, P. Wks. Comm., City Hall Annex, Quincy, Mass. Bids **May 22. CD 5/31, under** LB.

▲ **E. Turgeon Constr. Co. Inc.,** 42 Weybosset St., Providence, R. I., LB Est. **$2,500,000.** George Bldg. for Cancer treatment and RESEARCH, Lockwood St., PROVIDENCE, R. I. Rhode Island Hospital, 593 Eddy St., Providence, R. I. Bids May 2. CD 4/2.

▲ **V. B. Constr. Co., Inc.,** 732 Second Ave., New York, N. Y. CA **$1,707,423.** CENTRAL JUNIOR HIGH SCHOOL, Stanwick Rd., GREENWICH, CONN. Town Bd. Educ., Greenwich, Conn. Bids May 28, awarded June 5. CD 6/6, under LB.

▲ **Modern Manor Inc.,** Meriden Ave., Southington, Conn., CA **$1,111,800.** 102 HOUSES, "Meadowood", South End Rd., SOUTHINGTON, CONN. Meadowood Corp., Pinecrest Dr., Southington, Conn. Alan B. Crowell, c/o owner, engr. Awarded June 5. CD 7/9.

## MIDDLE ATLANTIC

### HEAVY CONSTRUCTION—BA

▲† **New York**—HOUSING, UTILITIES—BA On Or About 7/2—U. S. Eng., 111 E. 16 St., New York, one 3, Capehart permanent family housing ENG-30-075-57-8; and offsite utilities ENG-30-075-57-458; for Niagara FAA Defense Area, $3,000,000-$4,000,-000.

### HEAVY CONSTRUCTION—LB & CA

**PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

**Frank Mashuda Co.,** Evans City, Pa. CA **$1,913,124.** 15,021 ft. divided hy. c. conc. 1 I-beam bridge, T. R. 31, S. Strabane and Somerset Twps., Washington Co. Bids May 10. CD 5/15, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

**Kaufman Constr. Co., Inc.,** 4000 Pulaski Ave., Phila., Pa. CA **$4,932,706** 9-span plate girder bridge and 2 rein.-con. T-beam spans and 5 deck I-beam bridges, University and Gray Ferry Ave., L. R. 67057 (8) Philadelphia Co. Bids May 10. CD 5/15, under LB.

### BUILDINGS—LB & CA

▲ **Jos. and Sherman Wellchek,** 25 Coe Ave., Hillside, N. J., Own Forces, **$3,250,000.** 110 HOUSES Horse-shoe Rd., BERKELEY HEIGHTS, N. J. Harry Maslow, 275 Morris Ave., Elizabeth, N. J., archt.

**Edwin Brinckeroff & J. De Leo,** Plainfield Ave., Dunellen, N. J., Own Forces. **$825,000,** 48 HOUSES, Thompson Ave., BOUND BROOK, N. J. George Boylan, River Road Rt. 24, Highland Park, N. J., archt.

▲ **Adams Brothers,** 145 Sycamore Ave., Livingston, N. J., LB Est. **$5,000,000,** 240 HOUSES, Dover Road to be known as Guerin Park, Randolph Twp., CHESTER, N. J. Louis D. Guerin, Chester Rd., Succasunna, N. J. Richard Fitzsimmons, 24 Gregory Ave., West Orange, N. J., archt.

▲ **Weequahic Assocs.,** 1225 Boulevard, Westfield, N. J., Own Forces. **$3,250,000.** 45 HOMES of $75,000 class on the Boulevard, WESTFIELD, N. J. Henry Boyer, 39 Brandord Pl., Newark, N. J. and William Chirgotis, 968 Stuyvesant Ave., Union, N. J., archts.

▲ **Brownsville Constr. Co.,** Coal Rd., Brownsville, Pa., CA **$1,068,000.** general contract JUNIOR-SENIOR HIGH SCHOOL for Bethlehem Joint School Bd., FREDERICKTOWN, PA. Pub. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids May 2. CD 5/9, under LB.

**Rice & Weidman Inc.,** Box 1517, Lancaster, Pa. CA **$1,291,200,** general contract, secondary SCHOOL, Unionville-Chadds Fort Joint School Bldg., KENNETT SQUARE, PA. Pub. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids May 7. CD 5/13, under LB.

## SOUTH

### HEAVY CONSTRUCTION—LB & CA

▲† **Ruscon Constr. Co.,** 149 E. Bay St., Charleston, S. C., LB **$1,769,342;** class C MAINTENANCE HANGAR, Marine Corps Auxiliary Air Station, NBy 4977; BEAUFORT, S. C. Dist. P. Wks. Officer, Dpt. Navy, Naval Base, Charletson, S. C. CD 8/28/56.

† **Southern Constr. Co.,** Old Savannah Rd., Augusta, Ga., CA **$988,597;** one ADMINISTRATION Bldg. and 5 shop and operations bldgs., Marine Corps Auxiliary Air Station, NBy 4978, BEAUFORT, S. C. Dist. P. Wks. Officer, Dpt. Navy, Navy Base, Charleston. CD 6/13, **under LB.**

▲† **Robert E. Lee Co. & Crosland-Roof Constr. Co.,** 1623 Harden St., Columbia, S. C., CA **$1,120,402;** four 252 enlisted mens' BARRACKS and one 86 enlisted men's barracks, U. S. Marine Corps Auxiliary Air Station, P. Wks. Office, Bldg. No. 13, U. S. Naval Base, Charleston, S. C. Bids May 28. CD 6/13, under LB. NBy 5686; Spec. 5686/56, BEAUFORT, S. C. Dist.

▲† **Southern Constr. Co.,** Old Savannah Rd., Augusta, Ga., LB **$1,920,797;** supply OFFICE AND WAREHOUSE, supply facilities and cold storage warehouse, Marine Corps Auxiliary Air Station, NBy 4971, BEAUFORT, S. C. Dist. P. Wks. Office, Bldg. 13, U. S. Naval Base, Charleston, S. C. Bids June 6. CD 4/26.

### BUILDINGS—LB & CA

▲ **A. B. Newton & Co.,** Vidalia, Ga., LB **$1,295,000** (3 bidders) low-rent HOUSING Proj. Fla. 21-1 and 21-2, PAHOKEE, Fla. Pahokee Housing Autho., Box 918, Pahokee, Fla. Bids June 4. CD 5/14.

▲† **Blount Bros. Constr. Co.,** Bell Bldg., Montgomery, Ala., LB **$1,584,500,** est. $1,525,608, two SHOP TRAINING BLDGS. and BOILER and COMPRESSOR HOUSES at guided missile center Redstone Arsenal, ENG-01-076-57-84, HUNTSVILLE, ALA. U. S. Army, Redstone Arsenal, Huntsville, Ala. Bids June 5, CD 5/17.

▲† **Blount Bros. Constr. Co.,** Bell Bldg., Montgomery, Ala., LB **$2,380,370,** est. $2,637,606, 2 story, 24,160 sq. ft. each, 3 CLASS and LABORATORY BLDGS. Redstone Arsenal ENG-01-076-57-82, HUNTSVILLE, ALA. U. S. Army, Redstone Arsenal, Huntsville, Ala. Bids June 4, CD 5/17.

## MIDDLE WEST

### BUILDINGS—BA

**Ill., Carbondale**—HOME ECONOMICS—BA 7/11—Southern Illinois University, home economics bldg., group including **(A)** 1 story classroom and office wing; **(B)** ground floor and 3 story general laboratory, classroom and office bldg. **(B-1)** penthouse group incl. apartment, fan room, cooling tower and elevator equipment room and **(C)** 1½ story lecture hall wing. Plans deposit $100 on general or mechanicals; $50 on electrical or supplier plans. Mielke & Smith, 53 West Jackson Blvd., Chicago, archts.-engrs.

### HEAVY CONSTRUCTION—LB & CA

▲ **ILLINOIS**—State Div. Hys., Springfield,

**Ill.—Stupp Bros. Bridge & Iron Co.,** 3800 Webber Rd., St. Louis, Mo., CA **$1,553,614** steel for 19-span girder bridge, FA 1, Route 7 over B&O and other railroads, St. Clair Co.;

**Ill.—Allied Structural Steel Co.,** 20 N. Wacker Dr., Chicago, Ill., CA **$1,085,001** structural steel for girder grade separation, Northwest Expressway over Logan Blvd., Cook Co.;

**Ill.—Superior Concrete Co.,** 5113 Woodlawn Ave., Chicago, Ill., CA **$569,656,** WF beam 3-span grade separation, Northwest Expressway at Webster Ave., Chicago, Cook Co. Grand total, $3,208,271. Bids May 17, awarded June 4. CD 5/22, under LB.

▲ **ILLINOIS**—State Div. Hys., Centennial Bldg., Springfield,

**J. C. O'Connor & Sons,** 2104 Miner St., Fort Wayne, Ind., CA **$1,966,824.** wid'n. 5.4 mi. Rte. 1, Mt. Carmel north, Wabash and Lawrence Counties. Bids May 17. CD 5/22, under LB.

**ILLINOIS**—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, CA **Western Contr. Corp.,** Sioux City, Iowa, **M. J. Boyle & Co.,** 2480 Elston, Chicago, **Ryan Constr. Co.,** Evansville, Ind. and **S. A. Healy Co.,** 20 N. Wacker Dr., Chicago, (jointly) CA **$23,400,760,** Contrs. T-6-B & T-6-C, grading, drainage, paving, apurts. precast conc. and steel bridge 7.6 mi. extending north of 31st Street to north of Junction of Lake Street (US 2) and North Ave. (Ill. 64), Cook and DuPage Counties, E. Lionel Pavlo, 173 W. Madison St., Chicago, sec. engr., awarded June 4. CD 6/6, under LB.

**ILLINOIS**—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Ill. **S. J. Groves & Sons Co.,** 1104 W. Reynolds St., Springfield, Ill., **Arcole Midwest Corp.,** 3225 Main St., Evanston and **L. B. Strandberg & Sons, Inc.,** 608 S. Dearborn St., Chicago, Ill., CA **$12,135,670.** Contr. N-8-A, grading, drainage, paving, appurtenances, erecting conc. bridges 2.07 mi. Tri-State Rts., also 1.28 mi. N. Rte. and approx. 4.3 mi. interchange connectors and crossing MSP & SSM R.R. Fay, Spofford & Thorndike, Inc., 11 Beacon St., Boston, Mass., engrs., awarded 6/4/57. CD 5/28, under LB.

▲ **O. W. Burke Co.,** 1032 Fisher Bldg., Detroit 2, Mich., CA **$6,125,612,** TERMINAL BLDG., Detroit Wayne Major Airport, DETROIT, MICH. Wayne Co. Bd. Rd. Comm., 726 City-County Bldg., Detroit, Mich. Joseph W. Gross, 726 City-County Bldg., Detroit 26, Mich., engr. Bids May 28, CD 5/1.

### BUILDINGS—LB & CA

▲ **B & B Constr. Co.,** 1616 Covington St., Youn„stown, O., CA Est. over **$1,000,000.** 21-unit Saybrook SHOPPING PLAZA, incl. 1,200 car parking, SAYBROOK, O. Wm. Cafaro & Assoc., 1616 Covington St., Youngstown, O.

### PROJECTS COVERED

#### By Size

**Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.**

#### By Regions & Classes of Construction

**(In order of Listing)**

**BIDS ASKED**
**LOW BIDDERS**
**CONTRACTS AWARDED**

| | |
|---|---|
| **New England** | **Middle West** |
| **Middle Atlantic** | **West of Mississippi** |
| **South** | **Far West** |

**PROPOSED WORK**

| | |
|---|---|
| **Water Supply** | **Public Buildings** |
| **Sewers, Waste Disposal** | **Mass Housing** |
| **Bridges** | **Commercial Buildings** |
| **Streets & Roads** | **Industrial Buildings** |
| **Earthwork, Waterways** | **Unclassified** |

#### In These Stages

**PROPOSED WORK: Before and including appointment of engineers or architects.**
**BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.**
**SOON LETS CONTRACT: SLC**
**LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.**
**CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.**

**CD dates shown are of Construction Daily Issue in which last previous report was published.**

**OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.**

#### Symbols and Abbreviations Include:

| | |
|---|---|
| † | Federal Government |
| ▲ | Project of $1,000,000 or over. |
| ENR | Engineering News-Record |
| CD | Construction Daily |

**For additional reports see Construction Daily.**

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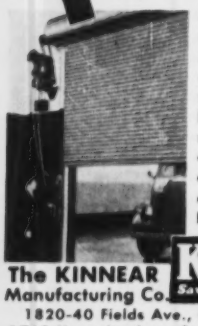
# Kinnear Rolling Doors



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KINNEAR ROLLING DOORS
Saving Ways in Doorways


▲ **Barton-Malow Co.**, 2631 Woodward Ave., Detroit, Mich., CA $1,063,000, Pub. Wks. GARAGE, Livernois and Vernon Sts., DETROIT, MICH. City, Glenn C. Richards, City Pub. Wks., Detroit, Mich. Milton F. Wagnitz, 528 City-County Bldg., Detroit, Mich., engr. Bids May 21. CD 6/3, under LB.

## WEST OF MISSISSIPPI

### BUILDINGS—SLC

▲ **Tex., Houston**—PENTHOUSE OFFICE—Gibraltar Savings & Loan Assn., c/o Greacen & Brogniez, archts., 3207 Mercer St., soon lets contract constr. 5 story, 92,000 sq. ft. 97 x 125 ft. to contain foundation sufficient for 5 addnl. stories, basement and penthouse office. $1,750,000. Walter P. Moore, 2 Pinedale St., B. Johnson & Assocs., 4926 Travis St., Houston, Tex., engrs. CD 5/20/55.

### HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul, Bids 6/7,

Minn.—**Industrial Constr. Co.**, 3050 Fourth Ave. South, Minneapolis, LB $4,501,194, (7 bidders), Bridge No. 5993 over Mississippi River Between South St. Paul and Newport, Dakota and Washington Counties. CD 5/23.

▲ **Brown & Root Inc.**, Box 3, Houston, Tex., CA $1,141,978 DEEP SEA TERMINAL No. 2 Brazos Harbor, FREEPORT, TEX. Brazos River Harbor Navigation Dist., c/o George G. Bade, Dist. Chrm. or Brazoria County 1001 Pine St., Freeport, Tex. Bids May 20. CD 5/24, under LB.

### BUILDINGS—LB & CA

▲ **Polaris Concrete Products Co.**, 6010 Medina Ave., Duluth, Minn., LB $1,034,000, general contract Woodland Jr. High SCHOOL, Woodland Ave. and Eighth St., DULUTH, MINN. Bd. Educ., H. Forsberg, clk., Duluth, Minn. Bids May 29. CD 5/13.

▲ **Lovering Constr. Co.**, 59 West Kellogg Blvd., and **J. S. Sweitzer & Son**, 777 Raymond Ave., St. Paul, Minn., LB $5,548,102 (3 bidders), general contract 458 unit Mt. Airy Housing and Development Proj., incl. 10 story apartment, of 176 dwellings, 93 row houses of 282 dwellings, a community bldg., and 2 story frame houses, ST. PAUL, MINN., St. Paul Housing & Development Authority, Nick J. Smith, chn., City Hall and Court House, St. Paul, Minn. Bids June 4. CD 4/30.

▲ **Priester Constr. Co.**, 1117 Davenport Bank Bldg., Davenport, Iowa, CA $1,296,000 general contract, HIGH SCHOOL, DAVENPORT, IOWA Catholic Diocese of Davenport, Most Rev. Ralph L. Keyes, Bishop and Most Rev. Msgr. Thomas J. Fenney, pastor, Sacred Heart Cathedral, Davenport, Iowa. Bids May 22. CD 5/20.

▲ **Messina Bros. Constr. Co.**, 1200 E. 8th St., Kansas City, Mo., CA $1,100,000, completion of auditorium, lobbies, offices and heating facilities of WORLD HEADQUARTERS, INDEPENDENCE, MO. Recoganized Church of Jesus Christ of Latter Day Saints, c/o Auditorium, Independence, Mo.

▲ **Clarence E. Vollmer Constr. Co.**, 840 N. Main St., Wichita, Kan., CA $1,238,410 general contract 4 story, rein.-con. 300-room MOTHER HOUSE for Sisters WICHITA, KAN. Sacred Heart College & Academy, Sisters of Adorers of the Most Precious Blood, Mother Mary Patricia, Provincial Superior, Wichita, Kan. Feagins, Kirsch & Feagins, 4007 E. Kellogg St., Wichita, Kan., archts.

▲ **Badger Mfg. Co.**, 230 Bent St., Boston, Mass., CA Est. $1,250,000. 1400-bbl. hydrofluoric acid alkylation REFINERY UNIT, ENID, OKLA. Champlin Oil & Refining Co., 5301 Camp Bowie Blvd., Fort Worth, Tex.

▲ **Howard Whitlock**, P. O. Box 781, Pueblo, Colo., CA $1,500,000. general contract, Southwest High SCHOOL, PUEBLO, COLO. School Dist. 60, 102 W. Orman Ave., Pueblo, Colo. Bids May 15, awarded May 29. CD 5/24, under LB.

## FAR WEST

### HEAVY CONSTRUCTION—BA

▲† **Calif., Muroc**—TEST TRACK FACILITIES—BA 6/26—U. S. Eng., 751 S. Figueroa St., Los Angeles, constr. special test track facilities Edwards Air Force Base, ENG-04-353-57-75. $3,500,000. Extended date. CD 5/23.

▲ **California**—OLYMPIC GAMES FACILITIES—BA About 7-15—State Olympics Com., 465 Calif. St., San Francisco, 2nd phase of olympic games facilties will consist of finishing portions of phase one incl. arena, temp. bldgs., ice rink, etc., $3,000,000; a 3rd phase will consist of finishing touches, etc. Corlett & Sparkman, 347 Clay St., San Francisco, archts.

### HEAVY CONSTRUCTION—LB & CA

▲ **Tolboe & Harlin Constr. Co.**, 3091 S. Main St., Salt Lake City Utah. CA $3,843,280. Part II, sewage treatment plant constr. in Central Weber Imprv. Dist., OGDEN, UTAH. City Bd. Trustees, City-County Bldg., Ogden, Utah. Bids May 20. CD 5/27, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Calif.—**Charles L. Harney, Inc.**, 575 Berry St., San Francisco, Calif., CA $7,925,295 constr. 4.5 mi. freeway on Sign Rtes 24 and 21 in Walnut Creek to constitute Walnut Creek Bypass, incl. ramps, frontage roads and connections and 16 rein.-con. bridges, Contra Costa Co. Bids May 22, CD 5/24, under LB.

▲† **Empire Gas Eng. Co.**, 8247 South Dixie hy., Miami 43, Fla., LB $5,543,619 (6 bidders) POL and hydrant refueling systems, NBy 3325, MARIANAS ISLANDS GUAM Bureau Yards & Docks, Navy Dpt., c/o Res Officer in Charge of Constr. 333 F11 St., San Francisco, Calif. Bids June 5. CD 4/10.

### BUILDINGS—LB & CA

▲ **Howard S. Wright Constr. Co.**, 414 Pontius St., Seattle, Wash., LB $6,044,209, est. $6,000,000-$7,000,000. flight engine test facility for Aircraft Nuclear Propulsion area National Reactor TESTING STATION, AT (10-1)878, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, P. O. Box 1221, Idaho Falls, Idaho. Bids June 5. CD 5/21.

▲ **Rancho Cajon Inc.**, 1503 Condor Ave., El Cajon Calif., Owner builds. $1,345,600; 108 stucco DWELLINGS, Madison, Condor, and Fargo Aves., EL CAJON CALIF.

▲† **P. J. Walker**, 3900 Whiteside Ave., Los Angeles, Calif., LB $1,143,733 (12 bidders). SHOP BLDGS. Camp Cooke, ENG-04-353-57-108, LOMPOC, CALIF. U. S. Eng., 751 S Figueroa St., Los Angeles, Calif. Bids June 5. CD 5/23.

▲ **Hart & Hynding Co.**, 472 Tehama St., San Francisco, Calif., LB $1,132,352 (3 bidders) alterations at Laguna Honda HOME, for the Aged, Job 1476, SAN FRANCISCO, CALIF. City and San Francisco Co., Dpt. P. Wks., City Hall, San Francisco, Calif. CD 11/5/54.

▲† **Sun Gold, Inc., & Inland Empire Builders, Inc.**, 3631 10th St., P. O. Box 2087, Riverside, Calif., CA $6,284,000 (joint venture) 500-unit Capehart HOUSING, TRAVIS AIR FORCE BASE, CALIF. Base Procurement Office, 5th Air Base Group, Travis Air Force Base, Calif. CD 4/23, under LB.

# PROPOSED PROJECTS

## WATER SUPPLY

▲ **Fla., Hollywood**—City Comn., Joseph W. Watson, mgr., City Hall, water treatment plant. $4,000,000-$5,000,000.

▲ **Tex., Georgetown**—Williamson Co. Water Control & Imprvt. Dist. No. 1, c/o Comns. Court, Courthouse, WW, $4,500,000.

▲ **Wash., Everett**—City, City Hall, 38,000 ft. 52 in. and 173,410 ft. 48 in. supply lines from Lake Champlain to Rucker Hill reservoir. $3,850,000. CD 12/21/54.

**Que., Louisville**—Town, filtration plant. $500,000. Jean Jacques Rondeau, 10550 Verville St., Montreal, consult engr.

## SEWERS, WASTE DISPOSAL

▲ **Ill., Chicago**—City, City Hall, voted bonds, June 3, imprv., constr. sewers. $8,000,000. CD 5/16.

▲ **Ind., Lebanon**—Bd. P. Wks., City Hall, sewage treatment plant and interceptor sewerage sys. $1,250,000.

**O., Kettering**—City, City Hall, sewers in Peach Orchard, $242,000; Indianola Plat, $86,000; Moler District, $133,000. CD 12/20.

## BRIDGES

▲ **Ill., Chicago**—City, City Hall, voted bonds June 3, bridges, grade separations and viaducts. $15,000,000. CD 5/16.

▲ **TENNESSEE**—State Hy. Dpt., Nashville,

**Shelby Co.**—bridge across Mississippi River, 400 ft. across Wolf River and 803 ft. span over what is now west side of Mud Island, etc., more than 1½ mi. total span. $35,000,000-$37,000,000. Modjeski & Masters, State St. Bldg., Harrisburg, Pa., consult. engrs. CD 4/17.

▲ **Wash., Bremerton**—State Hy. Comn., Olympia, toll bridge over Port Washington Narrows at Warren Ave. $4,000,000. Bids to be called next month. Tudor Eng. Co., 74 North Montgomery, San Francisco, Calif., consult. engrs. CD 7/22/53.

## STREETS AND ROADS

▲ **CONNECTICUT**—State Hy. Dpt. 165 Capitol Ave., Hartford,

**Ashford and Wilington**—bit. surf. tr. 3.4 mi. U.S. 44A from U.S. 44 southerly, 3.4 mi. U.S. 44 from US 44A easterly to Eastford Town Line, $75,000.

**Lyme, Killingly, etc.**—widening Eastern End of Connecticut Turnpike from 2-lanes to 4-lanes between Connecticut River at Lyme and Rhode Island State Line at Killingly, $17,000,000.

▲ **Mont., Bozeman**—City, City Hall, street paving and storm sewers, $1,724,000. Work to start 1958.

**O., Toledo**—Comrs. Lucas Co., Court House, relocating Matzinger Rd. and imprv. Benmore Rd., incl. grade separation crossing of Detroit, Toledo & Shoreline R.R., Washington Twp., Rd. Imprvt. 669 $638,773. Geo. A. Taylor, 4206 Monroe St., consult. engr. Guy Neeper, co. engr. CD 5/11/50.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

**Mercer, Venango, Clarion, Jefferson, Clearfield, Centre, Clinton, Lycoming, Columbia, Luzerne Carbon and Monroe Counties**—291 mi. divided hy. between Ohio State Line near Sharon and New Jersey State Line near Stroudsburg on entirely new route. FAI $268,651. Michael Baker, Inc., Rochester, Pa., consult. engr. R. A. Farley, c/o owner, ch. engr. CD 1/14.

(Continued on page 116)

# Tru-Stop Brakes

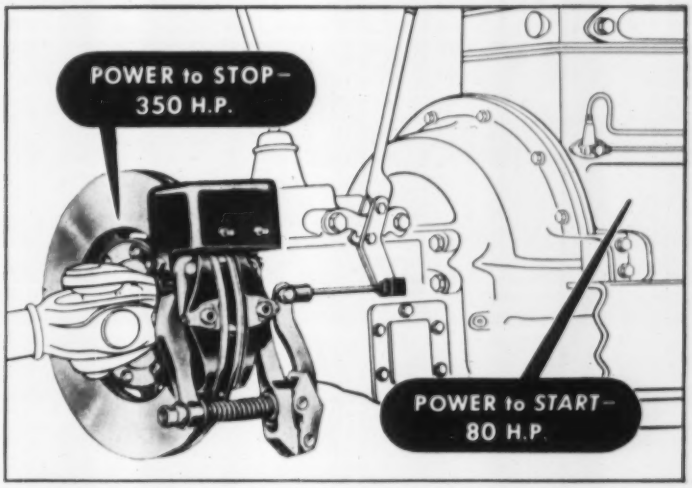
## Meet Every Heavy-Duty Safety Requirement

**OFFER POSITIVE PROTECTION AGAINST RUNAWAY OR PARKING ACCIDENTS—AT LOWEST COST**

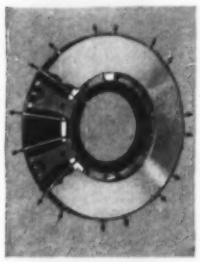
## HERE IS WHY:

### They have surplus power required for emergency service—no dangerous self-energizing

TRU-STOP Heavy-Duty Emergency Brakes are not only excellent parking brakes. They serve as a complete, independent and fully reliable braking system. Operating on the propeller shaft they enable the driver to continue on safely in the event of service brake failure. TRU-STOP brakes have the surplus braking capacity to be used *repeatedly* as an auxiliary to service brakes.




*Brakes actually do more work than the engine in terms of horsepower Where it takes 80 HP to accelerate to 20 miles per hour, it takes 350 HP to make a safe stop from 20 miles per hour within required limits*



### Ventilated to throw off heat

Brake efficiency depends on ability to throw off intense heat —rapidly. Discs of TRU-STOP brakes are exposed to the air even during the braking operation. Ventilated design circulates air *between* the disc plates.

### Give uniform brake pressure

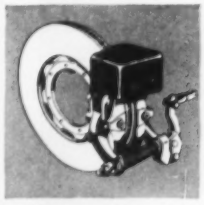
Disc of TRU-STOP brakes is "squeezed" between the flat surface of the shoes. Effort applied to brake lever operates front and rear lever arms simultaneously. Pressure is exerted on the center of each shoe. Entire lining surface is in contact.

**TRU-STOP HEAVY DUTY BRAKES OUTPERFORM AND OUTLAST DRUM-TYPE BRAKES**

**DON'T LET THE SURFACE AREA FOOL YOU!**

### Drum-type brake

43¼ square inches of lining. Lining covers 310 degrees of the drum. *BUT* only 50 degrees of the lining-covered drum is exposed to the air.



### Tru-Stop brake

28 square inches of lining. 90 degrees of the disc under pressure. *BUT* 270 degrees of the disc is exposed to air. Directing and throwing off heat is basis of brake efficiency.

*We will be glad to answer any questions or give you more detailed information about TRU-STOP Heavy Duty Emergency Brakes. Send for*

**Catalog DH 33**

## THE TEST

***Drum-type Brake*** **vs** ***Tru-Stop Brake***

**After a few light and two heavy applications from 20 MPH, lining was useless for further test.**

**Repeatedly stopped vehicle from 50 MPH — was then used to decelerate on steep grades. No serious damage to lining.**

**Automotive and Aircraft Division**

**AMERICAN CHAIN & CABLE**

601 Stephenson Building, Detroit 2
2216 S. Garfield Street, Los Angeles 22 • Bridgeport 2, Conn.

ACCO

TRADE MARK

# SHAKE unloading problems

## New EASTERN CAR SHAKERS

Bulk materials shipped in hopper bottoms and other open top railroad cars are unloaded easily with the aid of EASTERN'S new Car Shaker. Utilizing both impact and vibration, this new product incorporates the best features of earlier models to produce a more efficient operation. Its practical design and rugged construction have made it simple to operate and economical to use.

*Write for Bulletin 50*

**EASTERN CONSTRUCTORS, INC.**
**Poland, Ohio**


(Continued from page 114)

## EARTHWORK, WATERWAYS

▲ **Wyo., Wheatland**—Wheatland Irrigation Dist., Wheatland, canal to divert water from Rock Creek to Laramie River, $1,300,000.

## AIRPORTS

▲ **Okla., Tulsa**—AIRPORT—City, c/o Park Bd., City Hall, municipal airport imprvs., incl. runways, taxiways terminal bldg., loading and unloading areas, $4,365,680. Leigh Fisher & Assocs., Box 1168, South Bend, Ind., consult. engrs.

## PUBLIC BUILDINGS

▲ **Calif., San Jose**—SCHOOL—Alum Rock Elementary School Dist., c/o Supt., North White Rd., voted $1,000,000 bonds May 17, school and school addns., $4,000,000. CD 7/26/54.

▲† **Calif., Vallejo**—ENGINEERING BLDG.—Dpt. P. Wks. Office, Room C112, 12th Naval Dist., San Bruno, plans by Donald Francis Haines, 341 Market St., San Francisco, engineering bldg., Mare Island Naval Shipyard, $3,000,000. No appropriation.

▲ **Conn., Stratford**—ARMORY—State P. Wks. Dpt., 165 Capitol Ave., Hartford, armory for 242 AAA National Guard, Nichols Ave. $1,500,000. CD 3/26/43.

▲ **Ill., Springfield**—SCHOOL—Catholic Diocese, 524 E. Laurence St., boys high school. $1,800,000.

▲ **Ind., Indianapolis**—COUNTY HOME—Comrs. Marion Co., Court House, county home addn. to house elderly persons. $3,250,000. Constr. to start in September. CD 11/26/52.

▲ **Iowa, Davenport**—SCHOOL—Bd. Educ., Davenport, $1,000,000 bond election Sept. 23, high school $3,500,000. L. C. Kingscott & Assoc., 604 Putnam Bldg., archts. CD 4/3/56.

▲ **Iowa, Fort Madison**—SCHOOL—Bd. Educ., plans by Karl Keffer Assocs., 202 Masonic Temple Bldg., Des Moines, Senior High School $1,138,000.

▲ **Ky., Lexington**—MEDICAL SCIENCE, etc.—University of Kentucky, Commonwealth of Ky., Frankfort, plans by Meriwether, Marye & Assoc., 248 E. Shore St., Lexington, and Ellerbe & Co., assoc. archts., First Natl. Bank Bldg., St. Paul, Minn.; (A) 6 story, bsmnt., brick, concrete steel medical science bldg., (B), 11 or 12 story, bsmnt., brick, concrete, steel hospital, $15,000,000, Proctor, Ingles, 915 Limestone St., consult. engrs. CD 10/1; plans by Brock & Johnson, 159 Barr St., physical science bldg. at University of Kentucky, $4,500,000, Staggs & Fisher, 508 E. Main St., consult. engrs. CD 3/24/55.

▲ **Mich., Ypsilanti**—SCHOOLS—City, Bd. Educ., Hugh Adams, secy., voted bonds May 20, two Junior High Schools, and addns. to elementary schools, $4,500,000. CD 1/29/54.

▲ **N. Y., Brooklyn**—HOSPITAL—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, new addition and modernization existing building, Cumberland Hospital, Proj. HO-230 for Dpt. Hospitals, $5,324,000. To go ahead in 1957. CD 3/13/56.

▲ **N. Y., Brooklyn**—MUSEUM—Dpt. Parks, Arsenal Bldg., New York, Zone 21, reconstr., rehabilitation and general imprvs. to existing buildings, Brooklyn Institute of Arts & Sciences Central Museum, Proj. PV-235, $3,097,600. CD 3/23/45.

▲ **N. Y., Brooklyn**—MARKET—Dpt. P. Wks., Municipal Bldg., New York, Zonue 7, relocation of Fort Greene Market to Brooklyn Terminal Market Site, Proj. M-54 for Dpt. Markets, $4,930,000. To go ahead after 1962. CD 8/17/45.

▲ **N. Y., Farmingdale**—SCHOOL—Bd. Educ., Farmingdale, bond election June 26, 2,000 pupil high school $5,995,000; East Farmingdale Elementary School addn. $885,000; Woodward Parkway Elementary School addn. $395,000. CD 5/27.

▲ **N. Y., Kenmore**—SCHOOL—Kenmore Union Free School Dist., Kenmore, voted $4,900,000 bonds May 27, 1,200-pupil Senior High School. Fenno-Reynolds-McNeil, 2000 Sheridan Dr., archts. CD 4/18.

(**N. Y., New York**—COURTS—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. PW-166, new central magitsrate's courts bldg., Bronx Boro, $4,540,000. To go ahead after 1962.

▲ **N. Y., New York**—MARKET DEVELOPMENT—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Bronx Terminal Market Development Proj. M-47a, for Dpt. Markets, $32,600,000. To go ahead after 1962.

▲ **N. Y., New York**—NURSES RESIDENCE, etc.—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Metropolitan Hospital Nurses Residence and Training School, Proj. HO-59A For Dpt. Hospitals, $4,300,000. To go ahead in 1958.

▲ **N. Y., New York**—GARGAGE—President Manhattan Boro., Municipal Bldg., New York, Zone 7, garage, Proj. PM-201, 90 to 91 Sts. $1,980,000. To go ahead after 1962.

▲ **N. Y., New York**—HOSPITAL—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Gouverneur Hospital replacement, Proj. HO-168, for Dpt. Hospitals. $13,000,000. CD 1/29/43.

▲ **N. Y., New York**—HOSPITAL—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, 750-bed replacement Bellevue Hospital, connection to existing hospital laboratory and X-ray facilities, Proj. HO 1458 for Dpt. Hospitals. $22,100,000. To go ahead in 1960, 1961 and 1962. CD 5/21/45.

▲ **N. Y., New York**—BUILDINGS—Dpt. Parks, Arsenal Bldg., New York, Zone 21, new buildings and general imprvs. New York Zoological Society, Proj. PV-226, $6,520,722. To go ahead after 1962. CD 1/25/43.

O., **Cincinnati**—SCHOOL—Bd. Educ., 608 E. McMillan St., plans by Woodie Garber & Assoc., 104 Wm. Howard Taft St., Northeast Bond Hill elementary School, Rhode Island Ave., $700,000. CD 11/5/54.

▲ **O., Columbus**—OFFICE—Comrs. Franklin Co., Court House, plans by Charles Cloud, 931 E. 3 Ave., conversion of memorial bldg. into county office bldg. $2,000,000. CD 3/10/54.

▲ **O., Elyria**—SCHOOL—Elyria Bd. Educ., Elyria, bond election Nov. 5, school addns. $3,500,000.

▲ **O., Elyria**—COURT HOUSE—Comrs., Lorian Co., Court House, county court house to be located Route 57 just north of turnpike. $4,522,000. Richard Hawley Cutting & Assocs., 10550 Euclid Ave., Cleveland, Zone 6, consult. engrs. CD 11/20.

▲ **O., Hamilton**—SCHOOLS—Bd. Educ., 322 Dayton Ave., plans by Hair-Hetterich & Sigele, 10 Court St., Taft High School, $2,400,000; plans by Frederick J. Winkler & Assoc., First Natl. Bank Bldg., Garfield High School, $2,400,000. CD 11/12.

▲ **O., Parma**—SCHOOLS—Bd. Educ., 5401 W. 54 St., Zone 29, plans by Fulton, Dela Motte & Assoc., 6014 Euclid Ave., Cleveland, Zone 3, Junior High School, Stumph Rd. $1,200,000, Bids this fall; Junior High School in Seven Hills, $600,000, Bids this summer. CD 11/21.

▲ **O., Parma**—HOSPITAL—Parma Community Hospital, Patrick J. Cooney, chn., 9604 Enderby Dr., Cleveland, Zone 30, plans by Geo. S. Voinovich, 1922 E. 107 St., Cleveland, Zone 6, 200-bed hospital. $5,000,000. CD 10/20/55.

▲ **Tenn., Nashville**—HOSPITAL—Tennessee State Purchasing Comm., Nashville, constr. hospital for brain-damaged patients, Clover Bottom Home. $1,500,000. CD 8/20.

▲ **Utah, Salt Lake City**—MEDICAL CENTER, etc.—Utah State Building Bd., 419 State Capitol, Salt Lake City, plans by Ashton, Evans & Brazier, 24 S. W. Temple St., medical center. $10,000,000 ($1,500,000 appropriated); plans by Cannon, Smith & Gustavson, Zion's Savings Bank Bldg., engineering bldg. $1,300,000; plans by Lowell E. Parrish, 325 Dooly Bldg., educational bldg. $1,400,000 ($500,000 appropriated), for University of Utah. CD 9/27.

▲ **Wash., Bellevue**—SCHOOL—School Dist. 405, voted special levy May 28, Senior High School $1,000,000; and Junior High School $500,000. CD 5/4.

▲ **B. C., Coquitlam**—SCHOOL—School Bd., Coquitlam, plans by Duncan S. McNab & Assocs., 1155 W. Pender St., Vancouver, schools. $2,500,000. CD 3/22/47.

▲ **B. C., Victoria**—SCHOOLS—Greater Victoria School Dist., Victoria, plans by Polson & Siddall, 612 View St., schools for next 3 years. $4,470,000. CD 2/28/47.

▲ **Que., Baie St. Paul**—HOSPITAL—Hospice de Ste. Anne operated by Petites Soeurs Franciscaines de Marie Baie St. Paul, hospital addn. $2,500,000. Provincial govt. to finance.

## COMMERCIAL BUILDINGS

▲ **Ark., Little Rock**—HOSPITAL—Missouri Pacific Hospital, 1310 Lincoln St., plans by Richard W. Groh, 807½ W. 3rd St., 4 story, 40,000 sq. ft., 125 bed hospital addn. $1,000,000. H. Allen Gibson, Riegler Bldg., structural engr., Pettit & Pettit, Wallace Bldg., mechanicals and air-conditioning engrs. CD 9/19, under Missouri Pacific Hospital, as owner.

▲ **Calif., Menlo Park**—APARTMENT—Lionel Mayell, 2120 Mendocino Lane, Altadena, apartment, Willow and Middlefield Rd., incl. 2 bath units, garages, 2 swimming pools, etc. $3,500,000.

**Calif., Sonora**—TELEPHONE—Pacific Telephone & Telegraph Co., 140 New Montgomery St., San Francisco, rein.-con. telephone bldg. $844,000.

▲ **Conn., New Canaan**—CHURCH, etc.—St. Mark's Episcopal Church, 117 Oenoke Ridge, New Canaan, plans by O'Connor & Kilham, 101 Park Ave., New York, N. Y., church and parish house, Oenoke Ridge. $1,500,000. Garfinkel & Marenburg, 100 W. 42 St., New York, N. Y., consult. engrs. Bryan J. Lynch, 68 W. 11 St., New York, N. Y., landscape archt. Joseph W. Wohlpart Assoc., 155 E. 42 St., New York, N. Y., mech. engrs. CD 5/31.

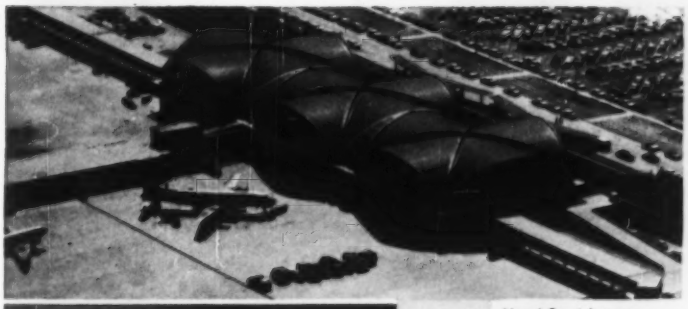
▲ **D. C., Wash.**—OFFICE—British Embassy, 3100 Massachusetts Ave. N. W., Wash., D. C., plans by Eric Bedford, Ministry of Works, London, England, office bldg. on Embassy Grounds, Massachusetts Ave. at Observatory Circle, $3,200,000. Construction in late 1958.

▲ **Fla., West Palm Beach**—RESIDENCES—B. K. Constr. Corp., Gould Hotel, Miami Beach, and Henry R. Bass & Charles Katz, 17141 Collins Ave., Miami Beach, 1,000 residences. $8,000,000-$10,000,000.

▲ **Ind., Indianapolis**—OFFICE—111 Realty Corp., c/o Klein & Kuhn, agt., Guaranty Bldg., plans by Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., 12 story, aluminum and glass office, air-conditioned, with 150-car basement parking area, 111 Monument Circle. $2,500,000.

▲ **Mo., Kansas City**—THEOLOGICAL SEMINARY—The Southern Baptist General Convention, c/o Baptist Bldg., Dallas Tex. (Branch), Theological Seminary. $2,000,000.

(Continued on page 118)

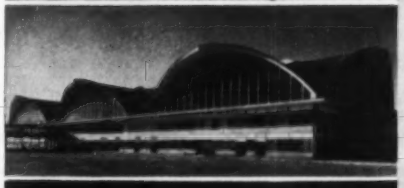


Lloyd Spainhower

**LAMBERT-ST. LOUIS MUNICIPAL AIR TERMINAL**

Hellmuth, Yamasaki & Leinweber* — architects
Robertson Schaefer Co. — structural engineers
Chicago, Illinois
William C. E. Becker* — general contractor
L & R Construction Co.*
*St. Louis, Missouri

*Winner of a First Honor Award, the American Institute of Architects, 1956*



Hedrich-Blessing

# REINFORCED CONCRETE

## *provides dynamic flexibility for airport terminal design*

THE NEW "SPIRIT OF ST. LOUIS"... A bold and imaginative example of the design flexibility of reinforced concrete is the new $4,500,000 Lambert-St. Louis skyport. Note the unusual treatment of the thin shell concrete roof formed of three intersecting, barrel-vaulted sections, only 4½ inches thick and 120 feet long. The architects also specified reinforced concrete for the floors and framing.

On many other important buildings and structures from coast to coast, reinforced concrete is also providing better structures for less money. It is a flexible medium, inherently firesafe, and highly resistant to wind, shock, and quake. On your next job, design for beauty plus economy . . . design for reinforced concrete.

**CONCRETE REINFORCING STEEL INSTITUTE**

38 South Dearborn Street
Chicago 3, Illinois

(Continued from page 116)

▲ **Mo., St. Louis**—HOSPITAL—Missouri Pacific Hospital, Harry J. Mohler, admin., 1755 S. Grand Blvd., Zone 4, plans by Marcel Boulicault, Ambassador Bldg., 411 N. 7th St., Zone 1, 84 bed 52 x 183 ft. brick, rein.-con. hospital addn. $1,000,000.

▲ **Mo., St. Louis**—OFFICE—The Caradine Hat Co., Raymond H. Wittcoff, vice pres. and dir. Bldg. Development, 8 S. 4th St., Zone 2, plans by Jamieson, Spearl, Hammond & Grolock, 1696 Arcade Bldg., 812 Olive St., Zone 1, 10 story, bsmnt., brick, steel, concrete, glass, etc. office bldg. and inside garage, $2,500,000. To start late in 1957.

▲ **N. J., Newark**—MEDICAL CENTER—Newark Medical Center, c/o Presbyterian Hospital, 27 South 9th St., medical center. $12,000,000.

▲ **N. Y., Buffalo**—RESEARCH CENTER—University of Buffalo, 3435 Main St., plans by Jacob Fruchtbaum, Jackson Bldg. Nuclear Research Center. $1,250,000. A. M. F. Atomic, Inc., (American Machine & Foundry Co.,) Broadway and Kennedy Rd., Cheektowaga, consult. engrs. CD 12/14/56.

▲ **N. Y., Ithaca**—LIBRARY—Cornell University, Ithaca, project cancelled, research library, $4,500,000. Woodie Garber, Wm. Howard Taft Rd., Cincinnati, O., archt. CD 5/31/56.

▲ **O., Cuyahoga Falls**—SHOPPING CENTER—TEMPLE Plaza Inc., c/o Rev. Rex Humbard, Calvary Temple, Cuyahoga Falls, L-shaped shopping center, main wing 150x612 ft., shorter wing jutting out 180 ft. for 9 stores. 60,000 sq. ft. office space, bsmnt. of 60,000 sq. ft. for youth center, and 12-acres blacktopped parking space. $2,000,000. Work to start this fall.

▲ **O., Yellow Springs**—OFFICE, etc.—Bd. Trustees, Antioch College, Yellow Springs, converting main building into 4 story office and classroom bldg. $1,000,000.

▲ **Tex., Houston**—OFFICE—Tennessee Gas Transmission Co., c/o Commerce Bldg., plans by Cowell & Neuhaus, 5619 Fannin Bldg., 37 story office, bounded by Milam, Louisiana, McKinney and Lamar Sts. $25,000,000.

▲ **Wash., Seattle**—COMMUNITY CENTER—Jewish Community Center, 1916½ 4 Ave., Zone 1, community center. $1,000,000. Planned for completion by 1950.

▲ **Wis., Sheboygan**—CATHOLIC HIGH SCHOOL—St. Thomas High School, Inc., 2000 W. Wisconsin Ave., Milwaukee, Catholic High School. $3,000,000. Begin constr. in 3 years.

▲ **Ont., Sarnia**—HOSPITAL—St. Joseph's Hospital, 290 N. Russell St., 6 story L-shaped, steel, hospital expansion $1,120,000. Giffels & Valet of Canada Ltd., 7 Queen St. E., Toronto, consult. engrs.

▲ **Que., Joliette**—HOUSING—Iberville Construction, Inc., 4995 Bellechasse St. E., housing, incl. 100 cottages, Des Prairie and Calixa-Lavalle Sts. $1,000,000.

## INDUSTRIAL BUILDINGS

**Ark., Harrison**—INDUSTRIAL—Boone Co. Industrial Comm., Harrison, plans by Harold Adams, Skokos Bldg., Fort Smith, 1 story, 50,200 sq. ft. concrete, steel industrial bldg. $500,000.

**D. C., Wash.**—DAIRY—Embassy Dairy, 1620 First St. N.W., plans by George Stone, Wire Bldg., dairy addn., alterations. $500,000.

▲ **Ill., Broadview**—FACTORY, etc.—Amphenol Electronics Corp., 1830 S. 54th St., Cicero, plans by Johnson & Johnson, 111 W. Washington St., Chicago, 1 and 3 story, brick, 250,000 sq. ft. factory and office, 25th St. $2,000,000.

**N. J., Gillette**—LABORATORY—International Nickel Co., 67 Wall St., New York 5, N. Y., laboratory, Cornish Farm, Gillette, Passaic Twp. $500,000.

**Pa., Jenkintown**—PLANT—Standard Pressed Steel Co., Jenkintown 44, Pa., 3 story, steel, masonry plant addn. to mfg. precision fasteners. $750,000.

**Tenn., Chattanooga**—PLANT—The Noland Co., 115 Market St., plans by Selman T. Franklin, 421 Poplar St., 250x240 ft. plant. $500,000.

▲ **Tex., Arlington**—WAREHOUSE, etc.—Great Southwest Corp., 401 Wynnewood Village, Dallas, public warehouse, $875,000; Motor Freight Terminals No. 1 $1,000,000; No. 2 $750,000; No. 3 $500,000; No. 4 $600,000 in area No. 2 south of Turnpike; constr. 2nd multi-purpose 32,000 sq. ft. industrial bldg., $275,000.

▲ **Tex., Beaumont**—DAIRY PLANT—Borden Co., 2299 Sabine Pass, dairy plant, (to process milk). $1,000,000.

**Wis., Rhinelander**—FACTORY—Consolidated Power & Paper Co., factory for pulping liquor recovery. $500,000.

▲ **Ont., Toronto**—BREWERY—The Carling Breweries Ltd., 247 Davenport Rd., brewery, Hys. 27 and 5. $14,000,000. CD 7/22/54.

## UNCLASSIFIED

▲ **Ark., Pine Bluff**—HUMP YARD—St. Louis-South Western R.R. Co., Cotton Belt Bldg., St. Louis 2, Mo., electronic gravity "hump" yard, incl. all automatic controls and switching. $5,250,000. J. M. Lowry, Tyler, Tex., ch. engr.

▲ **Colorado**—RURAL DISTRIBUTION LINES—Union Rural Electric Assn., 139 N. Main St., Brighton, 134 mi. rural distr. lines, one 3,000 kva sub-station Brighton, $1,260,000. CD 4/22/55.

▲ **Ill., Chicago**—DOCKS—City, City Hall, voted $4,000,000 bonds June 3, bonds for docks, barriers and rehabilitation of Navy pier. CD 5/15.

▲ **N. Y., New York**—PIERS—Dpt. Marine & Aviation, Pier 8, North River, New York, Zone 4, Piers 13, 14 and 15, North River, modernization, Proj. D-263, $4,000,000. To go ahead in 1957 through 1961.

▲ **N. Y., New York**—SHIPPING TERMINAL—Dpt. Marine & Aviation, Pier 8, North River, New York, Zone 4, railroad shipping terminal, Pier 66, foot of W. 26 St. North River, Proj. D-258. $1,500,000. To go ahead after 1957.

▲ **N. Y., New York**—SHIPPING TERMINAL—Dpt. Marine & Aviation, Pier 8, North River, New York, Zone 4, railroad shipping terminal at foot of Christopher St., North River, Proj. D-257. $1,000,000. To go ahead in 1957.

▲ **N. Y., New York**—PARK DEVELOPMENT—Dpt. Parks, Arsenal Bldg., New York, Zone 21, development of various unimproved areas of Pelham Bay Park Proj P-91 Bronx Boro. $2,817,933.

**O., Piqua**—ELECTRICAL TRANSMISSION SYSTEM—City, City Hall, electrical transmission system expansion. $605,000. John Salm, 601 W. Walnut St., Coldwater, consult. engr.

† **Rhode Island**—NIKE BATTERIES, PAVEMENT, etc.—U. S. Eng., 150 Causeway St., Boston, Mass., pavement and utilities Defense Area, NIKE Batteries, No. 19-29-38-58-69-79 and 99, Providence, $400,000-$500,000. Bids in June.

▲ **Tennessee**—RURAL DISTRIBUTION LINE—Volunteer Electric Co-operative, Decatur, 200 mi. electric distr. line and sys. imprvs., Meigs Co. $1,660,000.

**Tenn., Smyrna**—GAS SYSTEM—City, natural gas system, Approx. $250,000. Harry Hendon & Assocs., 10 Office Park Circle Mountain Brook, Birmingham 9, Ala., consult. engrs. CD 6/2/52.

▲ **Texas**—RURAL POLE TELEPHONE SERVICE LINES—Central Telephone Co., Decatur, imprv., extend rural pole line telephone service in Denton, Montague and Wise Counties. $1,038,000.

**Texas**—NATURAL GAS STORAGE CENTER—Lone Star Gas Co., 301 S. Harwood, Dallas, underground natural gas storage centers, 50,000,000,000 cu. ft. gas capacity, incl. 6 injection walls, near Athens, Henderson Co. $500,000.

**Texas**—RURAL DISTRIBUTION LINES, etc.—Wilson County Telephone Co., Inc., Floresville, telephone sys. imprvs. and more rural lines, Wilson Co. $680,000.

**Tex., Houston**—TUNNEL—City, City Hall, tunnel under 12 railway tracks, in completion program of Studewood St. into Washington St. $837,689. (Southern Pacific lines will help defray cost).


SAVE MAN HOURS WITH THE MOBILE TRUCK MOUNTED

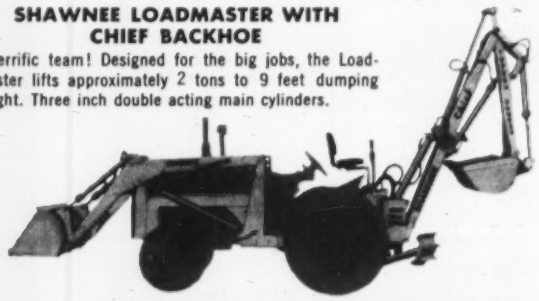
Chief BACKHOE

• Digs 14'-15' Deep • Exclusive "Push-Pull" Power • Sold as a Complete Unit or Mounted on Your Truck • Also Available with Warrior Backhoe

Biggest of the backhoes. "Push-Pull" cylinders operate synchronously — provide tremendous digging force. Three 120° quadrants of operation, adjustable from operator's position.

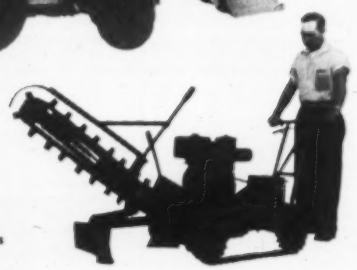
SHAWNEE LOADMASTER WITH CHIEF BACKHOE

A terrific team! Designed for the big jobs, the Loadmaster lifts approximately 2 tons to 9 feet dumping height. Three inch double acting main cylinders.



SHAWNEE SPECIAL HEAVY-DUTY LOADER with WARRIOR BACKHOE

Ideal companion to the Warrior — a slightly smaller version of the Chief — the Special lifts 2000 lbs. to 9 ft. dumping height. Two-pin mounting enables removing or mounting on tractor in 5 minutes.



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Digs 20" deep—2" or 3" wide. Six horsepower engine—crawler tracks. Designed to operate in all types of soil ranging from hard-packed California to Florida coral. Hydraulically driven—reversible.

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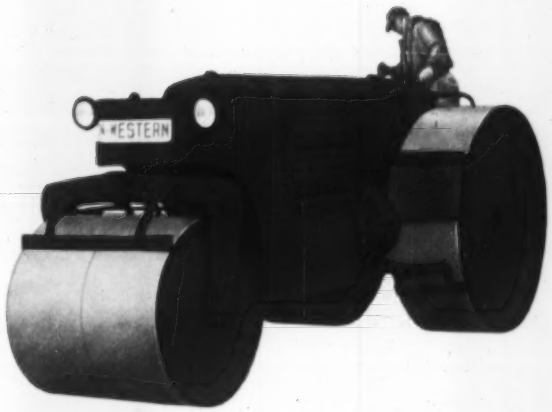
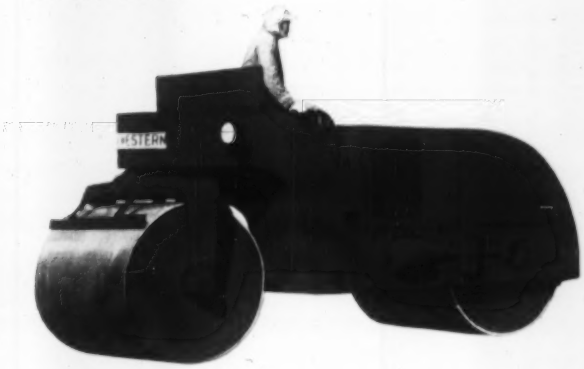


**THE A-W 3-WHEEL ROLLER**

Available in 8-11, 10-12, 12-14 ton models. The left drive roll is keyed to the axle shaft; the right turns on heavy duty bushings independently of the left roll and axle. Power is automatically transferred from the slipping roll to the opposite roll by a torque-proportioning-type differential which assures traction even under the most adverse conditions.



**THE A-W TANDEM ROLLER**

Available in 5-8, 8-12 10-14 ton models. All models have full-width seat and dual controls. Forward and reverse levers are located at each side of platform, with steering lever at center permitting operator to sit where visibility is best.

**THE A-W PORTABLE TANDEM ROLLER**

3½ to 6 ton, showing optional towing equipment. Full hydraulic steering. Powered with 4-cylinder gas engine.

# AUSTIN-WESTERN ROAD ROLLERS

## offer you smooth power, balanced weight, finger-tip control

Faster, more efficient compaction and finishing are yours with the new line of A-W Road Rollers. From power unit to final drive, all are engineered to give the operator complete confidence in his machine. Regardless of the work—subgrade, crushed stone, soil cement or black-top—these rollers will do a top-flight job.

All A-W 3-wheel and tandem rollers are powered by your choice of gasoline or diesel engines with 4-speed (regular) or 2-speed (optional) transmissions. Torque converter drives are optional. Drum-type front and rear rolls permit ballast variations in weight up to 4 tons.

Some of the A-W extras that give you better roller performance:

- **Oversize axles and antifriction bearings for longer life**
- **Transmission gears are machine cut heat treated**
- **Transmission is equipped with antifriction bearings**
- **3-wheel rollers have heat-treated alloy steel bull pinions and high-strength steel bull gears**
- **Tandem rollers have machine-cut, heat-treated final drive bevel gears and pinions**
- **Outside edges of finished rolls are beveled to prevent marks in hot materials**

An important advantage to owners of both A-W 3-wheel and tandem rollers is the fact that 75% of all driving and steering mechanisms are interchangeable. Get all the facts from your nearby Austin-Western distributor or write to us for them.

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AURORA, ILLINOIS, U.S.A.

**Model 543.** No machine or method can equal the low cost loading of this Barber-Greene loader. High travel speed, high capacity and finger tip discharge control save job time, man time, truck time.

# Cut loading costs the continuous way

In a Massachusetts sand and gravel pit, a Barber-Greene Model 543 Bucket Loader handles 900 tons of ¼" stone every day—easily tops all other methods in truck loading operations.

The 543 is ideal for the all-day-long loading operations of one truck after another because its continuous flow maintains maximum capacity regardless of the skill or zeal of the operator.

Its simple operation makes it easy for drivers to load their own trucks. A hydraulically controlled swivel conveyor has the reach to load highest and longest trucks and trim the load to full capacity every time. And this versatile loader can be easily converted into a coal, snow or leaf loader.

**Model 550 removes windrows in a hurry** . . . with a capacity that keeps ahead of all trucks normally available. This light, highly maneuverable machine reduces windrow loading to lowest cost. Self-propelled at 10 m.p.h., with a turning radius of 8' 6".

**Model 82A moves 1200 yards in 8 hours.** That's the record of a Barber-Greene in a New York building and supply yard. Handles sand, stone, coal and other materials at high capacities. Easy operation permits driver to load his own truck.

**Model 582 speeds topsoil stripping.** Crawler mounted for sure footing on all soft bases, and equipped with a hydraulic swivel conveyor, the 582 is the fast, profitable way to load from stockpile, windrow or bank or to make light excavations.

56-38L

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CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

# Bids—Low Bids—Contracts—Second Section

## NEW ENGLAND

### HEAVY CONSTRUCTION—BA

## NEW ENGLAND

### BUILDINGS—BA

**Conn., Wallingford**—SCHOOL—BA 7/26—Town, Town Hall, West Side Elementary School, Highland Ave., $950,000. Ketchum, Gina & Sharpe, 227 E. 44 St., New York, N. Y., archts. Cosenti Assocs., 237 First Ave., New York, N. Y., mech. engrs. Extended date. CD 2/4.

**Conn., Wallingford**—SCHOOL—BA 7/26—Town, Town Hall, East Side Elementary School, Durham Rd. $950,000. Ketchum, Gina & Sharpe, 227 E. 44 St., New York, N. Y., archts. Cosenti & Assocs., 237 First Ave., New York, N. Y., mech. engrs. Extended date. CD 2/4.

### HEAVY CONSTRUCTION—LB & CA

**John McCourt Co.**, 28 Wolcott St., Reading, Mass., LB $95,980, est. $100,000, bit. conc. pavement, Daniel Court, Hyde Park, BOSTON, MASS., City, P. Wks. Dpt., City Hall Annex, Boston, Mass., Bids June 6, CD 5/31.

**Fortuna Inc.**, 158 Kenwood Ave., Fairfield, Conn., LB $192,565 (7 bidders) Contr. 31, sanitary sewers west of Black Rock Turnpike FAIRFIELD, CONN. Town, Town Hall, Fairfield, Conn. Bids May 27. CD 5/22.

**Clark & Fray Constr. Co.**, 631 Lindley St., Bridgeport, Conn., LB $149,810 (4 bidders) Contr. 32, sanitary sewers State St. Exten. Area. (Fairfield, Conn.).

**Velleca-DeLucia Constr. Corp.**, 175 Grand Ave., New Haven, Conn., LB $218,853 (4 bidders) paving portions of Whalley Ave., George St., Sachem St., Howard and Winchester Aves., NEW HAVEN, CONN. City, 200 Orange St., New Haven, Conn. Bids May 29.

▲ **Vanguard Constr. Corp.**, 369 Lexington Ave., New York, N. Y., LB $1,044,727, sewage sys. and disposal plant, NORWICH, CONN. City, City Hall, Norwich, Conn., Bids June 6. CD 4/26.

### BUILDINGS—LB & CA

▲ **Bank Bldg. & Equip. Corp.**, 9 and Sidney Sts., St. Louis, Mo., CA Est. $1,000,000. Design and construct, BANK, MANCHESTER, N. H. Manchester Savings & National Bank, 876 Elm St., Manchester, N. H. John D. Betley, 944 Alm St., Manchester, consult, archt.

**Robert Stone Co.**, 44 W. Foster St., Melrose, Mass., Separate Contracts, Approx. $360,000, 18 houses, RESIDENTIAL DEVELOPMENT, "Crystal Estates", Rte. 133, ANDOVER, MASS.

▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass., CA $1,554,000. elementary SCHOOL, Franklin District, BOSTON, MASS., City, Dpt. School Bldgs., 26 Norman St., Boston, Mass., Bids May 9, CD 5/14 under LB.

**E. J. Pinney Co. Inc.**, 220 Dwight St., Springfield, Mass. CA $522,460, GYMNASIUM, CHICOPEE, MASS., City School Dpt., 135 Grape St., Chicopee, Mass., Bids May 25, CD 5/29 under LB.

**Whelan & Peterson**, 204 Worcester St., Wellesley, Mass., LB $599,967, elementary SCHOOL, East St., EAST HINGHAM, MASS., Town, East Hingham Elementary School Bldg., Comn., 229 North St., Hingham, Mass., Bids June 5. CD 5/15.

**Robert Stone Co.**, 44 W. Forter St., Melrose, Mass., Separate Contracts, Approx. $375,000, 15 house, RESIDENTIAL DEVELOPMENT, Cranmore Lane, MELROSE, MASS.

**Robert Stone Co.**, 44 W. Forster St., Melrose, Mass., Separate Contracts, Approx. $360,000, 20 house, RESIDENTIAL DEVELOPMENT, Parker Rd., WAKEFIELD, MASS.

**Scientific Design Co., Inc.**, 2 Park Ave., New York, N. Y., CA Est. $150,000. Design and construct chemical process PLANT, CRANSTON, R. I. Atlantic Tubing & Rubber Co., Mill St., Cranton, R. I.

**Industrial Constr. Co.**, 120 Prospect Ave., Hartford, Conn., CA $400,000. APARTMENT bldg. and residence hall, South Marshall St., HARTFORD, CONN. Travelers Insurance Co., 700 Main St., Hartford, Conn. Jeter & Cook, 36 Pearl St., Hartford, archts. Awarded June 6.

**Joseph Gross**, 358 Lincoln St., New Britain, Conn., CA approx. $190,000 19,000 sq. ft. PLANT and office, Park St., HARTFORD, CONN. Advo System, 28 Park St., Hartford, Conn. Irving W. Rutherford, 49 Garden St., Hartford, archt. Awarded June 6.

▲ **Tornabene Bros. Co.**, 170 Needham St., Newton Upper Falls, Mass., CA $1,113,000, HOSPITAL, near Summer St., STOUGHTON, MASS., Gooddard Memorial Hospital, 129 West Elm St., Brockton, Mass. Bids May 9. CD 5/15, under LB.

**Aberthaw Constr. Co.**, 60 State St., Boston, Mass., CA $500,000, factory, LABORATORY & OFFICE bldg., Cabot, Cabot & Forbes Center, Winter St., WALTHAM, MASS., Wirthmore Feeds Co., 177 State St., Boston, Mass., Cabot, Cabot & Forbes, 60 State St., Boston, Mass., engrs.

**Monaco Constr. Co.**, 104 Reservoir Ave., Bridgeport, Conn., CA $513,000; Proj. BI-R-130, Henry Abbott Technical SCHOOL ADDN., DANBURY, CONN. State P. Wks. Dpt., 165 Capitol Ave., Hartford, Conn. Bids Apr. 24, awarded June 7. CD 5/1, under LB.

**Alexander Schnip & Sons Inc.**, 107 Forest St., Norwich, Conn., LB $612,393 (6 bidders) Hebron Ave. Elementary SCHOOL, GLASTONBURY, CONN. Building Comn., Town of Glastonbury, Academy School, Main St., Glastonbury, Conn. Bids June 7. CD 5/15.

**Alpert Constr. Co.**, County Court, Woodbridge, Conn., CA $750,000. WAREHOUSE and office, NEW HAVEN, CONN. New Haven Plumbing Supply Co., 221 Water St., New Haven, Conn. Awarded June 6. CD 4/3.

† **Gramercy Constr. Corp.**, 114 Liberty St., New York, N. Y., CA $925,582, Bid Item No. 1, SCHOOL facilities, U. S. Naval Submarine Base, NBy-8177, NEW LONDON, CONN. Dist. P. Wks. Office Third Naval Dist., Federal Office Bldg., 90 Church St., New York 7, N. Y. Bids Dec. 20, awarded June. CD 12/13.

**Bonvicini Bldg. Co. Inc.**, 1500 S. Main St., Torrington, Conn., LB $814,600. (6 bidders) regional high SCHOOL for Towns of Barkhamsted, Colebrook, Norfolk and New Hartford, WINSTED, CONN. Regional School Dist. No. 7, 384 Main St., Winsted, Conn. Bids June 5. CD 4/25.

## MIDDLE ATLANTIC

### BUILDINGS—BA

**Md., Towson**—SCHOOL—BA 6/24—Baltimore County, Bd. Educ., Arigburth Rd., 1 & 2 story, masonry, concrete, steel, block, Pleasant Plains Elementary School, $500,000. Plans deposit $50, Border & Donaldson, 2517 St. Paul St., Baltimore, Zone 18, archts. CD 6/20/56.

**Del., Claymont**—SCHOOL—BA 6/25—Massena & DuPont, archts., 704 Delaware Ave., Wilmington, Darley Road Elementary School for Claymont Special School Dist., Claymont, Del., $1,000,000. Lambert McGee & Costello, Inc., 1629 Chestnut St., Phila., Pa., engr. CD 6/5.

**Pa., Franklin**—SCHOOL—BA 7/16—State Pub. School Bldg. Auth., 101 S. 25 St., Harrisburg, elementary school, Cooperstown. Plans deposit $40. elementary school at Rocky Grove, Plans deposit $50. for Valley Grove School Dist. in Sugar Creek Twp. Frank J. Dickerson, 1902 7 Ave., Beaver Falls, archt. CD 3/8/56.

### HEAVY CONSTRUCTION—LB & CA

▲ **P. J. Carlin Constr. Co.**, 41-17 Crescent St., Long Island City, N. Y., CA $1,887,000 coal handling structures for 59th St. Power Plant, Manhattan Boro P-114, Contr. No. 1, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids May 10. CD 5/15, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., State Hy. Office Bldg., 1035 Parkway Ave., Trenton,

**Franklin Contracting Co.**, 12 Central Ave., Newark, CA $1,621,623, (5 bidders), paving the Route 42 North-South Freeway from south of Browning Road, Bellmawr, to its interesection with the Black Horse Pike, Gloucester Twp., Camden County, Bids May 23, CD 5/29, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 606 North Office Bldg., Harrisburg, Bids opened 6/7,

Pa.—**The Kelley & Meyer Co.**, 1211 Gibson St., Youngstown, Ohio, LB $135,111 (5 bidders), widening existing pavement and putting bit. surf. on Traffic Rte. 78 2.27 mi. from point in Slippery Rock Borough southwest, Butler Co.

Pa.—**Galliardi Constr. & Supply Co.**, 801 Second Nat'l. Bank Bldg., Connellsville, Pa., LB $305,474 (7 bidders), widening existing pavt. and putting on bit. surf. Traffic Rte. 121, 2.22 mi. from near Cheat Haven north, F.A., Fayette Co.

Pa.—**Kenneth G. Richards**, McConnellsburg, Pa., LB $272,390 (3 bidders), widening and improving roadway with bit. surf. and installation of prestressed precast rein.-con. deck bridge over a tributary of Conococheague Creek and Buc. Run, Traffic Rte. 75, 2.68 mi. north from State Rte. 415 near Mercersburg Borough, F.A., Franklin Co.

Pa.—**Ezra Stipp Constr. Co.**, Love Road, Scranton, Pa., LB $159,942, (5 bidders), 0.94 mi. bit. surf. 18 ft. wide on Traffic Rte. 690, incl. rein.-con. bridge over Rattlesnake Creek, F.A., Lackawanna Co.

Pa.—**Stabler Constr. Co.**, 635 Lucknow Lane, Harrisburg, Pa., LB $96,274, (8 bidders), bit. surf. to improve vertical and horizontal alignment on Traffic Rte. 70, 0.91 mi. from point in Vandling Borough, southwest, Lackawanna Co.

Pa.—**Ralph V. Daniels, Inc.**, R.D. 1, Mechancsburg, Pa., LB $127,647, (2 bidders), bit. surf. of existing pavt. on Traffic Rte. US 15, 2.64 mi. from point in South Williamsport Borough east, Lycoming Co.

Pa.—**Fred W. Ewing, Inc.**, 405 W. Main St., Corry, Pa., LB $180,730, (3 bidders), widening existing pavt. from 18 ft. to 24 ft. with bit. surf. on U. S. Rte. 6, 1.68 mi. from Erie-Warren County Line east and extension and surf. existing bridge, Warren Co.

Pa.—**Russell Industries, Inc.**, 1 Prestley Road, Bridgeville, Pa., LB $172,328, (2 bidders) bit. surf. of existing pavt. US Rte. 19 and Traffic Rte. 980, 4.55 mi. from near Washington City and from near Canonsburg Borough northwest toward Venice, Washington Co. CD 5/17.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Pa.—**Brayman Constr. Co.**, 2 Canterbury Rd., Pittsburgh, Pa., CA $2,227,595, Sch. 1 substructure and grading and drainage of approaches, South Bridge over Susquehanna River between Harrisburg, Dauphin Co. and Lemoyne, Cumberland Co.;

Pa.—**Harris Structural Steel Co. Inc.**, 419 Fourth Ave., New York 16, N. Y., CA $4,122,666 Sch. 2, superstructure and paving of approaches and service roads for South Bridge over Susquehanna River between Harrisburg, Dauphin Co. and Lemoyne, Cumberland Co. Bids May 24, awarded June 10. CD 5/28, under LB.

▲ **Laub Constr. Co.**, 1518 Walnut St., Phila., Pa., LB $789,888, Bid 2818, Lardners Point pumping station alterations, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids June 4. CD 5/23.

**M. & J. B. McHugh**, 892 N. Markoe St., Phila., Pa., LB $118,762, Bids 2819, watermains (Phila., Pa.).

**Somers Constr. Co.**, Cynwyd, Pa., LB $109,300, Bid 2820, Belmont filter plant (Phila., Pa.).

**MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2, Bids 6/4.

Md.—**C. J. Langenfelder & Son Inc.**, 8427 Pulaski Hy., Baltimore, Md., LB $876,553, (6 bidders), contr. B-771 1-420, grading, drainage and surf. 1.045 mi. of interchange and Rd. connection 1.045 mi. North Point Rd. and North Point Blvd. incl. two 3 span steel beam bridges, Baltimore Co.

Md.—**E. A. & J. O. Crandall Inc.**, West River, Md., LB $258,346, (3 bidders), contr. C-229-1-520, 1,700 ft. timber bulk head, embankment, paving, resuf. bridge wid'n. etc. along State Rte. 2, on Patuxent River Side Solomons Island Causeway, Calvert Co. CD 5/24.

**Ligon & Ligon, Inc.**, 3310 Ridgewood Ave., Baltimore 15, Md., LB $120,383, (2 bidders), Contr. 35, CONDUITS, and manholes, BALTIMORE, MD., City, Bureau Electric & Mechanical Services, 320 Municipal Bldg., Baltimore 2, Md., W. Rayner Straus, c/o Owner, engr. Bids June 5. CD 5/10/55.

**Intercounty Constr. Con.**, 4720 Baltimore Ave., Hyattsville, Md., LB $202,974, (5 bidders), water supply for Springfield State Hospital, SYKESVILLE, MD., State, Dpt. of Pub. Imprvs., 506 Park Ave., Baltimore 1, Md., Whitman, Requard & Assoc., 1304 St. Paul St., Baltimore 2, Md., engr. CD 11/17/49.

**Masonry Resurfacing & Constr. Co.**, B & O Coal Pier, Curtis Bay, Baltimore, Md., LB $194,025, (3 bidders), rehabilitation of Bear Creek Toll Bridge, between Dundalk and Sparrows Point, TOWSON, MD., Baltimore Co., Revenue Auth., County Office Bldg., Towson, Md.

### BUILDINGS—LB & CA

▲ **Jonwal Constr. Co.**, 1565 Franklin Ave., Mineola, N. Y., CA Est. $738,000. elementary SCHOOL; CA est. $1,800,000. junior-senior high school COPIAGUE, N. Y. Bd. of Educ., Copiague, N. Y. Knappe & Johnson, 390 E. 150 St., New York, Zone 55, archts.

▲ **Lenard Homes**, c/o Albert B. Meklenburg Organization, 1038 Northern Blvd., Roslyn, N. Y. Owner Builds, $1,800,000. 125 HOUSES on 70-acre tract at Larkfield and Clay Pitts Rd., EAST NORTHPORT, N. Y.

**Sylkory Realty Corp.**, 1324 Auerbock Rd., Hollis, N. Y., Owner builds, $600,000, multiple DWELLING and garage, 110-29 72 Ave. west of 112 St., FOREST HILLS, N. Y. CD 5/8.

**Double M. Constr. Corp.**, Central Park Rd., Plainview, N. Y., LB $945,000 (12 bidders) three 3-story 100-unit HOUSING, East Merrick Rd., between Buffalo and Albany Aves., FREEPORT, N. Y. Freeport Housing Auth., Freeport, N. Y. Bids June 11. CD 5/24.

▲ **Guild Estates**, c/o Henry A. Klar Realty Co., 220-02 Horace Harding Blvd., Bayside, N. Y., Owner Builds, $1,000,000. 60 HOUSES on Bloomingdale Rd. near Hicksville Rd., HICKSVILLE, N. Y.

▲ **HRH Constr. Corp.**, 16 W. 46 St., New York, N. Y., CA $17,138,000. general contract Castle Hill HOUSES (Proj. NYS-76) in area bounded by Seward, Castle Hill, Cincinatus, Havemeyer, Lacombe and Olmstead Aves., Bronx Boro, NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York, 7, N. Y. Bids May 7. Grand total, $21,793,750. CD 5/9, under LB.

**Harry Starkman & Bros.**, 348 Brook Ave., New York 54, N. Y., CA $1,378,000, heating and ventilating for Castle Hill Houses (New York, N. Y.).

**Herman H. Schwartz Inc.**, 179 S. Portland Ave., Brooklyn, 17, N. Y., CA $1,048,750 electrical work for Castle Hill Houses (New York, N. Y.)

**J. L. Murphy Inc.**, 340 E. 44 St., New York 17, N. Y., CA $2,229,000 plumbing work for Castle Hill Houses (New York, N. Y.).

▲ **Caldwell-Wingate Co.**, 101 Park Ave., New York 17, N. Y., LB $5,600,000. third section of Jefferson HOUSES, NEW YORK, N. Y., New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids May 28. CD 8/22/51.

▲ **T. Frederick Jackson**, 39-22 30 St., Long Island City, N. Y., CA $1,500,000. electrical work for Unit 3, POWER STATION, PORT JEFFERSON, N. Y. Long Island Lighting Co., 250 Old Country Rd., Mineola, N. Y. CD 12/13/55.

▲ **HRH Constr. Co.**, 16 W. 46 St., New York 19, N. Y., CA Est. $2,691,166. 6-story HOSPITAL ADDN., Webster and Stanley Aves., ST. GEORGE, S. I., N. Y. Staten Island Hospital, 101 Castleton Ave., Staten Island, N. Y. Eggers & Higgins, 100 E. 42 St., New York, Zone 13, archts.

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▲ **M. E. Maloney & Co. Inc.**, 346 Maple Ave., Westbury, N. Y., CA Est. $2,000,000. HIGH SCHOOL, WESTBURY, N. Y. Bd of Educ., Westbury, N. Y. CD 2/13.

**West Constr. Co.**, 20 Nicholson Rd., Audubon, N. J., LB $453,800, 2 elementary SCHOOLS and 2 deep WELLS, Chews Landing Road and Blenheim Road, BLACKWOOD, N. J., Bd. Educ. Gloucester Twp., Blackwood, N. J. CD 5/17.

**C. L. M. Corp.**, 122 York Rd., Jenkintown, Pa., CA $500,000, OFFICE bldg. alterations, CAMDEN, N. J., Camden Amusement Co., 805 Federal St., Camden, N. J., Joseph Parissman & E. K. Hunter, 521 Cooper St., Camden, N. J., archt.-engrs.

**Turner Constr. Co.**, 1500 Walnut St., Philadelphia, Pa., CA $93,000, parking, GARAGE and paving, CAMDEN, N. J., Campbell Soup Co., 100 Market St., Camden, N. J., Alexander O. Crossett & Assocs., 27 William St., New York, N. Y., engrs., CD 7/31/56.

▲† **Magnus International Inc.**, 1604 Walnut St., Philadelphia, Pa., CA $1,611,999, 78-unit senior OFFICERS QUARTERS and site imprvs., 36-109-57-52, FORT DIX, N. J., U. S. Eng., 2635 Abbottsford Rd., Philadelphia, Pa., Edwards & Green, 17 S. 5th St., Camden, N. J., engr.-archts. CD 5/24, under LB.

▲ **James D'Agostino**, 133 Cedar Lane, Teaneck, N. J., Own forces, $1,600,000, section of 135 HOUSES in Harrington Park Manor, HARRINGTON PARK, N. J. Harsen & Johns, Railroad and Summit Aves., Tenafly, archts.

**J. Marcellus & Co., Inc.**, 5214 Girard Ave., Philadelphia, Pa., CA $344,000, SUPER MARKET and parking area, ELLISBURG, N. J., American Stores Co., 121 N. 15th St., Philadelphia, Pa.

▲ **Anger & Geran Corp.**, Box 806 Red Bank; or East Road, Middletown, N. J., Own forces, $1,300,000, 91 HOUSES on East Road known as Pasadena Homes, MIDDLETOWN, N. J.

▲ **Sylvan Builders, Inc.**, 35 Sylvan Ave., Bergenfield, N. J., Own forces, $2,000,000, 95 to 100 HOMES in the Grantwood section, NEW MILFORD, N. J. Percy Simon, 362 Cedar Lane, Teaneck, archt.

▲ **Walchap Constr. Co.**, E. 42 Fair View Terrace, Paramus, N. J., Own forces, $3,000,000, 150 HOUSES on Beechwood and Grant Aves., adjoining orignal section of Beechwood Acres, ORADELL, N. J. C. J. Kordys, 116 Passaic St., Passaic, archt.

▲ **Wolfinger Constr. Co.**, 19-03 Fair Lawn Ave., Fair Lawn, N. J., Own forces, $4,250,000, 200 HOUSES on Alps and Ratze Roads, New Alps Village, PREAKNESS, N. J., Peter Butler, 172 State St., West Englewood, N. J., archt.

**De Fino Constr. Co.**, 130 Hartley Place, Fair Lawn, N. J., CA Est. $900,000, 30 HOMES on Nottingham Road, RAMSEY, N. J. John De Fino, 105 Shair Ave., Fair View, N. J. Rudolph Bolling, 40 Carol St., Ramsey, archt.

▲ **Shaba Kunk Hills Inc.**, 1203 Parkside Ave., Trenton, N. J., Separate contracts, $2,580,000, 100-unit RESIDENTIAL DEVELOPMENT and swimming pool, TRENTON, N. J.

▲ **Baton Constr. Corp.**, 1717 Sansom St., Phila., Pa., CA $3,700,000. general contract, senior high SCHOOL and parking area, Glenside, ELKINS PARK, PA. Cheltenham Twp. School Dist., Elkins Park, Pa. Bids May 21. CD 6/4, under LB.

**Wark & Co.**, 1920 Sansom St., Phila., Pa., CA $751,170 general contract, high SCHOOL ADDN., alterations, LANSDOWNE, PA. Lansdowne-Aldon Joint School System, Lansdowne, Pa. Bids May 22. CD 6/4, under LB.

▲ **Levitt & Sons Inc.**, Levittown, Pa., Separate Contracts $1,428,000. 119-unit RESIDENTIAL DEVELOPMENT, Forsythia Gate, Middletown Twp., LEVITTOWN, PA.

**Hughes Foulkrod**, 1505 Race St., Phila., Pa., CA $437,-413. Bid 2814, Torresdale High Service Station, Reservoir No. 2, PHILA., PA. Dpt. Procurement City Hall Annex, Phila., Pa. CD 11/24/44.

▲ **Spring-Ford School Auth.**, Royersford, Pa., rejected bids Apr. 24, HIGH SCHOOL, parking, greenhouses and swimming pool, ROYERSFORD, PA. LB $1,697,-000. CD 5/20, under LB.

▲ **William F. Sutter**, Nescopeck, Pa., CA $1,161,890 general contract, two junior high SCHOOLS, wells and parking areas, one at Route 82 near Ercildowne and one at Route 340, THORNDALE, PA. Bradywine Area Joint School Auth., Thorndale, Pa. Bids May 23. CD 6/4, under LB.

**Union Paving Co.**, 1 E. Wynnewood Rd. Wynnewood, Pa., LB $171,981, paving various streets, UPPER DARBY, PA. Upper Darby Comnr., Upper Darby, Pa. J. Earl Kirk, twp. engr.

▲ **Hugh McGinn**, Newtown Square, Pa., LB $193,975 Contract No. 1, sanitary sewers and paving. WAYNE, PA. Radnor Twp. Municipal Auth., 212 E. Lancaster Ave., Wayne, Pa. Bids June 5. Yerkes Eng. Co., Bryn Mawr, Pa., engr. CD 5/10.

**Globe Contg. Co.**, Victory Ave., Upper Darby, Pa., LB $148,005. Contract No. 2; LB $127,332. Contract No. 3, sewers and paving (Wayne, Pa.)

**Cestone Constr. Co.**, 327 Haverford Rd., Wynnewood, Pa., LB $146,116, Contract 4, sewers and paving (Wayne, Pa.).

**Chester County Comrs.**, Court House, West Chester, Pa., rejected bids May 28, water distr. and sewage treatment plant, County Prison, WEST CHESTER, PA. CD 5/20.

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▲ **B. Bornstein & Son**, 2027 Arch St., Phila., Pa., LB $1,952,500, general contract, high SCHOOL, WILLOW GROVE, PA. Upper Moreland Twp. School Dist., Willow Grove, Pa. Bids June 4. CD 5/15.

**Consolidated Engr. Co., Inc.**, 20 E. Franklin St., Baltimore, Md., CA $783,000, (4 bidders), Brick, conc., limestone, steel, block CHURCH addn. etc. BALTIMORE, MD., Church of the Redeemer, 5603, N. Charles St., Baltimore, Md., Rogers Taliaferro & Lamb, 18 West St., Annapolis, Md., archt. Pietro Bellushi, 18 Frail St., Boston, Mass., engr. CD 6/23/55.

**Kirby & McGuire Inc.**, 2518 Greenmount Ave., Baltimore 18, Md., CA $898,584, 1 story, 24 rooms, Wakefield elementary SCHOOL, BEL AIR, MD., Bd. Educ. Harford Co. Bel Air, Md., Fisher, Nes & Campbell & Assocs., 1020 St. Paul St., Baltimore 2, Md., archts. Bids May 7, CD 5/17 under LB.

▲ **L. G. Meltzer Assocs.**, 1012-14th St., N. W. Washington, D. C., Owner Builds, $1,342,000, 61 homes Ashburton Development, BETHESDA, MD., Jack Cohen, 7961 Eastern Ave., Silver Springs, Md., archt.

▲ **Modern Constr. Co.**, 8500 Defense Hy., Lanham, Md., Owner Builds, $1,600,000, 89 HOMES, Section 5, in Carrolton, LANHAM, MD.

# SOUTH

## HEAVY CONSTRUCTION—LB & CA

**Carl E. Widell & Son**, Haddonfield Rd., Merchantville, 10, N. J., CA $669,984, Item No. 1, Proj. 6, utilizes imprvs., municipal incinerator, HOLLYWOOD, FLA. City Comn., City Hall, Hollywood, Fla. Bids Apr. 16, awarded June 4. CD 4/25, under LB.

▲ **J. M. Brown Constr. Co.**, 1012 Spring St., Shreveport, La., LB $1,096,665; water treatment plant and related facilities, BOSSIER CITY, LA. City, City Hall, Bossier, La. Bids June 11. CD 5/24.

† **R. O. Davis, Inc.**, Box 3218, Austin, Tex., CA $606,916, fuel storage and fuel loading facilities, U. S. Naval uxiliary Air Station, NBy 6402, NEW IBERIA, LA. Dpt. Navy, Bureau Yards & Docks, Eighth Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans, La. Bids Apr. 4. CD 4/18, under LB.

▲† **Wilson Electric Co., Inc.**, 1113 8th Ave. S., Nashville, Tenn., CA $1,041,440; furnishing and installing controls and instrumentation in supersonic circuit of the propulsion wind tunnel at Arnold Engr. Development Center, ENG-40-126-57-19. TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn. Bids Apr. 16, awarded June 8. CD 5/1, under LB.

## BUILDINGS—LB & CA

**John B. Orr Inc.**, 485 N.W. 54 St., Miami, Fla., LB about $500,000 National Park HOTEL, S.E. 8 St. and U. S. Hy. 1, HOMESTEAD, FLA. National Park Hotel Inc., c/o Earl V. Wolfe, archt., 7210 Red Rd., South Miami, Fla. Bids May 28. CD 5/20.

**Liles, McElvy & Rutland**, 2828 W. Edgemont Ave., Montgomery, Ala., LB $520,192; LOW RENT HOUSING PROJECTS, Ala 112-1 and 112-2, OPP, ALA. Opp Housing Authority, Opp bids June 4, CD 5/17.

▲ **R. P. Farnsworth Co.**, 1515 S. Salcedo St., New Orleans, La., CA $1,614,000 (general contract) Proposal 342, 4 story and basement CIVIL COURTS BLDG., NEW ORLEANS, LA. City, George Bosworth, Purch. Agt., New City Hall, New Orleans, La. Bids June 11. CD 5/23.

**Hartz & Kirkpatrick**, 2449 Frederica St., Owinsboro, Ky., LB $434,710, est. $350,000, 1 and 2 story, 40,000 sq. ft. brick, stone trim CHURCH and educational bldg., HOPKINSVILLE, KY. Hopkinsville Christian Church, 229 East 9th St., Hopkinsville, Ky. Chas. Young, Madisonville, Ky., consult. engr. Bids June 6. CD 5/23.

**Wehr Constructors Inc.**, 2127 S. Floyd St., Louisville, Ky., CA $422,700, est. $466,645 (3 bidders) 1 story shyrock Elementary SCHOOL, Brown's Lane near Lowe Rd., LOUISVILLE, KY. Jefferson Co. Bd. of Educ., 618 W. Jefferson St., Louisville, Ky. Bids June 6. CD 5/31.

**Carl Batson**, 933 Woodmont St., Nashville, Tenn., CA $619,000; 70 DWELLINGS UNITS and office bldg., representing addns. to Upton Heights Housing Court, LEBANON, TENN. Lebanon Housing Authority, Lebanon, Tenn. CD 9/14.

**Sumner Constr. Co.**, 912 8th Ave. S., Nashville, Tenn., CA About $600,000; SANCTUARY and EDUCATION PLANT, with spire 175 ft. high, NASHVILLE, TENN. Vine Street Christian Church, 140 7th Ave. N., Nashville, Tenn. Awarded June 4.

† **Moorer Constr. Co., Inc.**, Oak Ridge, Tenn, CA $415,000; constr. Municipal Bldg., OAK RIDGE, TENN. U. S. Atomic Energy Comn., Oak Ridge, Tenn., bids June 6, CD 5/10.

# MIDDLE WEST

## HEAVY CONSTRUCTION—BA

**MICHIGAN & MISSOURI**—ARSR-1 FACILITIES—BA 6/21—Civil Aeronautics Administration, Federal Office Bldg., Kansas City, Mo., ARSR-1 facilities, Lambert Field, St. Louis, Mo., and Wayne-Major Airport, Detroit, Mich., 3-57-125.

**Mich., Detroit**——BA 6/25—At office M. F. Wagnitz, County engr., 528 City-County Bldg., Zone 26, reconstr. sidewalks and driveways, Group SW 57-4, Contr. PW-2363 PW-2359, for Dpt. P. Wks.

**Mich., Detroit**—BA 6/25—at office M. F. Wagnitz, County engr., 528 City-County Bldg., Zone 26, grading, draining, and paving alleys, Group 57-2A, Contr. PW-2967F-PW-2977F, for Dpt. P. Wks.

† **Mich., Marquette**—AIRCRAFT SHELTER—BA 6/25—U. S. Eng., 1101 Washington Blvd., Detroit, aircraft shelter, K. I. Sawyer U. S. Air Force Base. CD 8/21/56.

† **Mich., Detroit**—FUEL STORAGE TANK—BA 6/28—U. S. Eng., 1101 Washington Blvd., underground fuel storage tank, vicinity of Detroit.

† **Mich., Selfridge**—TEST CELL—BA 6/28—U. S. Eng., 1101 Washington Blvd., Detroit, jet engine test cell, Selfridge Air Force base. CD 11/21/55.

**Mich., Detroit**—BA 7/2—At office M. F. Wagnitz, county engr., 528 City-County Bldg., Zone 26, grading, draining, and paving alleys, Group 57-3A, Contr. PW-2704F-PW-2987F, for Dpt. P. Wks.

**Mich., Detroit**—RECREATION CENTER—BA 7/2—Office of city engr., 528 City-County Bldg., Zone 26, recreation center at the Arthur W. O'Shea Memorial Park, 15810 Capitol St., Contr. PR-140, for Dpt. Parks and Recreation. CD 5/25/56. Plans deposit $25.

**WISCONSIN**—BA 7/2—State Hy. Comn., State Office Bldg., Madison,

**Barron Co.**—single aggreg. bit. surf. 6.267 mi. State Hy. 48, The Luck-Cumberland Rd. Contr. 3 Proj. T 0132(2). Plans deposit $2.

**Bayfield Co.**—grade, sub-base and base course 1.922 mi. State Hy. 13, The Port Wing-Red Cliff Rd. Contr. 1 Proj. S 0269 (7). Plans deposit $3.

single aggreg. bit. surf. 12.155 mi. State Hy. 13, The Washburn-Bayfield Rd. Contr. 2 Proj. T 011-2(12). Plans deposit $2.

**Buffalo Co.**—grade, base and b. conc. pavt. 0.714 mi. State Hy. 35, Lower Main Street (City of Alma). Contr. 1 Proj. T 028-1(2). Plans deposit $3.

**Dane Co.**—grade, base and single aggreg. bit. surf. 0.826 mi. State Hy. 73, Hubbel Street (Village of Marshall). Contr. 1 Proj. S 0245(4). Plans deposit $4.

grade, base and b. conc. pavt. 1.205 mi. State Hy. 78, The Mt. Horeb-Black Earth Rd. Contr. 1 Proj. T 0253(3). Plans deposit $3.

**Grant Co.**—base course 4.425 mi. C. T. Hy. "U", The Potosi-Beetown Rd. Contr. 2 Proj. S 0573(6). Plans deposit $1.

**Green Lake Co.**—base course 7.42 mi. State Hy. 49 The Green Lake Station-Berlin Rd. Contr. 2 Proj. F 072-2(4). Plans deposit $2.

**Iowa Co.**—grade, base and b. conc. pavt. 0.396 mi. US Hy. 18 and 151, Main Street (Village of Ridgeway) Contr. 1 Proj. T 017-1(14). Plans deposit $3.

**Marathon Co.**—sub-base and base course 6.519 mi. C. T. Hy. "J", The S.T.H. 29-S.T.H. 52 Rd. Contr. 1 Proj. S 0531(5). Plans deposit $1.

base course 11.293 mi. State Hy. 29, The Abbotsford S.T.H. 97 Rd. Contr. 2 Proj. F 020-2(17). Plans deposit $2.

**Milwaukee Co.**—grade, base and concrete pavt. 1.124 mi. US Hy. 41, West Appleton Ave. (West Capitol Drive) to West Burleigh Street (City of Milwaukee). Contr. 1, Proj. U 03-1(54). Plans deposit $3.

grade, concrete base and b. conc. pavt. 0.952 mi. US Hy. 41, S. T. Hy. 36, South 27th Street (West Loomis Rd. to West Oklahoma Ave.) ad West Loomis Rd. (South 32nd Street to South 27th Street), City of Milwaukee, incl. concrete masonry, bridges and culverts, bar steel rein. Contr. 1 Proj. U 02-2(19) & U 064-1(8). Plans deposit $4.

b. conc. pavt. 4.93 mi. US Hy. 41, State Hy. 36, West Appleton Ave. (S. T. H. 181-South Interchange) and Loomis Rd. (West County Line-S. T. H. 100). Contr. 1, Projs. T 03-19(21) & T 064-1(21).

seal coat 6.913 mi. US Hy. 41, The North and South Interchanges (Frontage Rds.), Contr. 1, Proj. T 03-1(22).

**Oconto and Shawano Counties**—single aggreg. bit. surf. 22.08 mi. State Hys. 32, 22 and 29, Krakow-Gillett, Cecil-North County Line, The South County line—Gillett and Shawano-Wittenberg Rds., Contr. 1, Projs. T 0261(5), T 039-2(11), T 039-2(12) and A.F.E. 58-731.

**Ozaukee and Sheboygan Counties**—c. conc. and b. conc. pvt. 10.524 mi. State Hys. 57 and 84, Saukville-North County Line, South County Line-Waldo and Fredonia Knellsville Rds. and the Fredonia Intersection. Contrs. 3, 2, 1, 2 and 2 Projs. F 02-3 (13), F 02-3(17), T 0138(1), F 02-3(12) and S 0138(1). Plans deposit $4.

**Outagamie Co.**—grade, base and concrete pvt. 1.858 mi. State Hy. 96, The Appleton-Little Chute (West Section) Rd. Contr. 1 Proj. T 0338(7). Plans deposit $4.

**Polk Co.**—grade, ballase and base course 1.059 mi. C.T. Hy. "G", The S.T.H. 87-Milltown Rd. Contr. 1 Proj. S 0782(2). Plans deposit $2.

sub-base and base course 5.332 mi. C. T. Hy. "J", The C. T. H. "F", U. S. H. 63 Rd. Cont. 1 Proj. S 0128(5). Plans deposit $1.

**St. Croix Co.**—grade, base and concrete widening 0.907 mi. US Hy. 12, The Baldwin-East County Line Rd. Contr. 1 Proj. T 06-4(45). Plans deposit $2.

**Sheboygan Co.**—grade, concrete base and b. conc. pavt. 0.834 mi. US Hy. 141, North 15th Street (City of Sheboygan). Contr. 1 Proj. T 01-3(19). Plans deposit $3.

**Taylor Co.**—base course 4.783 mi. State Hy. 102, The S. T. H. 13-Rib Lake Rd. Contr. 2 Proj. T 046(3). Plans deposit $1.

**Trempealeau Co.**—grade, base and single aggreg. bit. surf. 1.124 mi. State Hy. 93, Diagonal Street, Washington Street and Osseo Rd., (City of Independence). Contr. 1 Proj. T 090(8). Plans deposit $3.

**Vernon Co.**—base course and aggregs. for bit. road mix surf. 3.354 mi. C. T. Hys. "W", "EE" and "Q", The S. T. H. 80-C. T. H. "C" and C. T. H. "W"-East County Line Rds. Contr. 1 Projs. S 1031(1) and S 1409(2). Plans deposit $1.

**Washington Co.**—grade, base and concrete pavt. 0.627 mi. US Hy. 45, Fond Du Lac Rd. (Village of Kewaskum). Contr. 1 Proj. T 027-1(12). Plans deposit $3.

**Waushara Co.**—b. conc. pavt. 6.304 mi. State Hy. 21, The Redgranite-S. T. H. 49 Rd. Contr. 1 Proj. T 071-1(4). Plans deposit $2.

grading 6.87 mi. C. T. Hy. "E", The Pine River-North County Line Rd. Contr. 1 Projs. S 0311(1) and S 0595(2). Plans deposit $7. CD 10/6/55.

## BUILDINGS—BA

**Wis., Monroe**—SCHOOL—BA 7/1—Bd. Educ., Senior High School, $900,000, extended date. Weiler Strong & Assocs., 810 University Bay Dr., Madison, engr.-archts. CD 5/22.

## HEAVY CONSTRUCTION—LB & CA

▲ **Hunkin-Conkey Constr. Co.**, 1740 E. 12 St., Cleveland 14, O., CA $2,495,000. Ridge Rd. Incinerator, CLEVELAND, O. City, Dpt. P. Service, City Hall, Cleveland 14, O. Bids Apr. 25, awarded June 5. CD 4/29, under LB.

▲† **Hughes Simonsen Inc.**, 20 N. McGee St., Dayton, O., LB $1,049,250. furnishing, installing all mechanical and electrical equipment, Bldgs. 45 research facility and test A/C missile, Wright-Patterson Air Force Base, Eng-15-029-57-74, DAYTON, O. U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids June 4.

**Baker Bros. Constr. Co.**, Elmsford, N. Y., LB $869,685; est. $944,255; (6 bidders) water distr. sys. in Ridgeville Twp., ELYRIA, O. Lorain Co., Commissioners, Court House, Elyria, O. Bids June 5. CD 5/23.

▲ **ILLINOIS**—Ill. State Toll Hy. Comn., 20 N. Wacker Dr., Chicago,

**Contracting & Material Co.**, 1235 Dodge, Evanston; **Kenny Constr. Co.**, 3220 Oakton St., Skokie and **Louis Garavaglia**, 24240 Mound St., Centerline, Mich., LB $11,297,050, conts. T-5-AB (comb)-grading, drainage, paving, appurts., erec. precast conc. bridges 5.36 mi. from junction of 71 St. and Wolf Road in S. W. Cook County to N. of 31 St., Harza Eng. Co., 20 N. Wacker Dr., Chicago, sec. engrs., CD 5/17.

**ILLINOIS**—State Div. Hys., Centennial Bldgs., Springfield,

**McCann & Co., Inc.**, 2145 Divereaux St., Springfield, Ill., CA $708,890. b. conc. resurf. 1.55 mi. F. A. Route 155, Clifton-Elsah, Madison and Jersey Counties. Bids May 17, awarded June 6. CD 5/22, under LB.

▲ **ILLINOIS**—State Div. Hys., Centennial Bldg., Springfield, rejected bids May 17, paving 9.03 mi. AASHO Test Road, LaSalle to Ottawa, La Salle Co., LB $6,622,514; bit. surf. tr. 2.68 mi. F. A. S. Route 835, Perry and Washington Counties, LB $208,693. CD 5/22, under LB.

† **Illinois**—U. S. Eng., 475 Merchandise Mart, Chicago, Zone 54,

rejected bids May 8, levee repair, Thompson Drainage & Levee Dist., Illinois River, CIVENG-11-032-57-51, CD 5/1.

▲ **ILLINOIS**—Ill. State Toll Hy. Comn., 20 N. Wacker Dr., Chicago,

**Central Engineering Co.**, 2531 Rockingham Rd., Davenport, Iowa, CA $2,742,463, cont. E-1-A—grading, drainage, paving, appurts. erec. precast conc. and steel bridges 3.67 mi. W. of Deerpath Rd. ext. easterly W. of State Rte. 31, Aurora Volt, Ivers, Seaman & Assocs., 20 N. Wacker Dr., Chicago, sec. engrs., CD 5/17.

**WISCONSIN**—State Hy. Comn., Madison,

**A. F. Keyes Co.**, 1232 Fairview Ave., South Milwaukee, Wis., CA $864,415, grading, base structures and conc. pavt. 3.201 mi. Int. Rte. 102, C.T.H. "SS"-C.T.H. "T" Road, Proj. IN 102-1 (1), Contr. 1, Waukesha Co. Bid June 4. CD 6/10, under LB.

▲ **MICHIGAN**—State, Charles M. Ziegler, State Hy. Comn. Stevens T. Mason Bldg., Lansing, Bids opened 6/5,

Mich.—**Ann Arbor Construction Co.**, 221 Felch St., Ann Arbor, Mich., LB $78,633 Est. $100,000 (12 bidders) bit. aggreg. surf. 9.353 mi. on FAS Rte. 150, 467 and 464. CS 51-18 CS (S 234 6) CS 51-27 C3, Manistee Co.

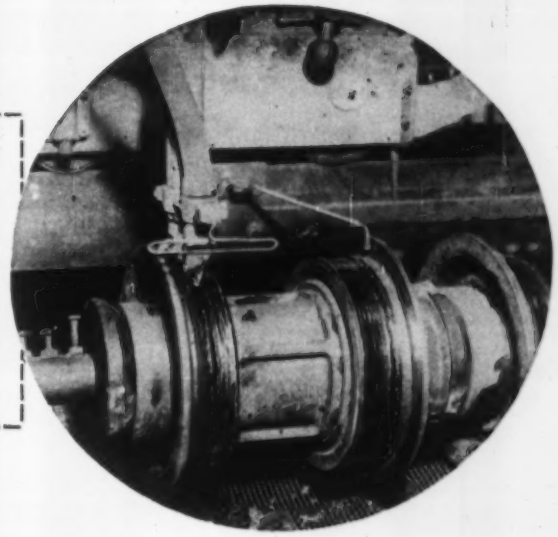
Mich.—**Ayling Asphalt Paving Co.**, Adrian, Mich., LB $212,143 Est. $280,000 (12 bidders), 24 ft. b. conc. Class 1, 9.405 mi. on US-131 from Reed City north. M67014 CI RN; Osceola Co.

Mich.—**Cooke Contracting Co.**, 1116 Penobscot Bldg., Detroit, Mich. and **Charles J. Rogers, Inc.**, 14836 Grand River, Detroit, Mich., LB $982,257 Est. $1,120,000 (12 bidders), grading, drainage structures, surf. service roads and utility alterations 1.25 mi. on Edsel Ford Expressway from Cadillac to Norcross Aves. BI 82025 C6-UO (I 09-1 51), Wayne Co. CD 5/23.

▲† **Great Lakes Dredge & Dock Co.**, 228 N. La Salle St., Chicago, Ill., LB $10,816,320, Middle Neebish Channel deepening, removing four mile stretch of rock from channel upper end of Neebish Island to Sugar Island, St. Mary's River, MICHIGAN, U. S. Eng., 1101 Washington Blvd., Detroit, Mich., Bids June 4, CD 5/3.

## Does it pay to

# REBUILD TRACTOR ROLLERS?



***here's one answer...***

**This is a report from one of the country's largest tractor maintenance shops having complete facilities for crawler reconditioning. It particularly concerns rebuilt track rollers, a major item of wear. In this shop rollers are regularly rebuilt and hard-faced by the automatic electric welding process, using Stoody 105 on the running surface and flange.**

About a year ago a tractor came into the shop for overhaul. The rollers were badly worn; those found suitable for rebuilding were returned to size with Stoody 105 and the internal assemblies thoroughly reconditioned. The balance of the rollers were discarded and replaced with standard parts. Following routine procedure, the shop foreman checked the entire crawler assembly to insure proper alignment—*a highly important factor in reducing needless wear.* After 2500 hours this tractor came in again for its customary overhaul. Inspection of the rollers disclosed the following:

**The standard rollers, without exception, were worn from ⅜" to ½" on the running faces; in all cases the internal assemblies required several replacement parts.**

**Hard-faced rollers showed negligible wear on running surfaces and the only replacements needed were new seals for internal assembly.**

It is of course an accepted fact that rollers rebuilt and hard-faced with Stoody 105 by the automatic method give a service life considerably beyond that of standard replacements—at a much lower cost. The hard-faced roller with its superior abrasion resistance reduces uneven wear on the track rails by providing a smooth, even working surface that allows free movement of the rails and resists grooving of the roller. Hence, wear on the internal roller assembly is also decreased

*Stoody 105, the alloy used in this application, was the first automatic wire of its type and is today the alloy generally preferred by principal shops It has been proven by eight years of actual field use—assurance of maximum service life at reasonable cost.*

Earth-moving contractors operating large fleets of tractors, shovels, buckets and crushing plants often find the installation of an automatic welding head a profitable investment for rebuilding rollers, idlers, house rolls, crusher rolls and similar wearing parts. Many contractors, however, prefer to send such work to a thoroughly equipped automatic job welding shop of which there are a number located throughout the country. *A list of these job shops is available on request.*

Complete information on automatic hard-facing installations and procedures will gladly be supplied—without obligation. You may consult your local Stoody dealer—see the "yellow pages" of your phone book under "Welding Equipment and Supplies"—or write direct.

**STOODY COMPANY**

**11976 East Slauson Ave. Whittier, Calif.**

▲ **Dunbar & Sullivan Dredging Co.**, 2312 Buhl Bldg., Detroit, Mich., LB **$7,259,260**, Middle Neebish Channel Deepening, three and one-mile stretch of rock bottom, lower end of Neebish Island, St. Mary's River, (Michigan).

▲ **Price Brothers & McClung**, 1932 E. Monument St., Dayton, O., LB **$1,199,470**, Middle Neebish Channel Deepening, Hydraulic Dredging 7½ mi. of Channel, St. Mary's River, (Michigan).

**MICHIGAN**—State, Charles M. Ziegler, State Hy. Comn., Stevens T. Mason Bldg., Lansing, Bids opened 6/5,

**Williams Brothers, Ionia, Mich.**, LB **$78,616**, Est. $90,000 (4 bidders), bit. aggreg. on parts of FAS Rte. 275, Jefferson Rd. and FAS Rte. 713. CS 34-57-03 (S 546 3) CS 34-62 C1 (S 548 2) CS 34-62 C2 (S 916 1) CS 34-74 C3 (S 699 2), **Ionia Co.** CD 6/5.

**MICHIGAN**—State, Charles M. Ziegler, State Hy. Comn., Stevens T. Mason Bldg., Lansing, Bids opened 6/5,

**Walter Toebe & Co.**, 412 West Gier St., Lansing, Mich., LB **$307,598**, Est. $270,000 (7 bidders), 3 rein.-con. T beam bridges also drainage and incid. work on 7-Mile Rd., Mackinac Rd. and Three-Mile Rd. over M-20. 6-4-2 mi. respectively west Bay City, BM B 2 of 9-10 12 C1-R BM B3 of 9-10 12 C1-R BM B4 of 9-10-12 C1-R, May Co. CD 5/17.

**MICHIGAN**—State, Charles M. Ziegler, State Hy. Comn., Stevens T. Mason Bldg., Lansing, Bids opened 6/5,

**Mich.—Canonie Construction Co.**, South Haven, Mich., LB **$91,017** Est. $90,000 (7 bidders), remove bridge and constr. concrete bridge on South Main Street over Kalamazoo River ½ mi. south of Battle Creek. CS B1 of 13-10-23 C1 (S 1393 1), Calhoun Co.

**Mich.—Owen-Ames-Kimball Co.**, 38 Pearl St. N. W., Grand Rapids, Mich., LB **$121,725**, est. $140,000 (7 bidders), rein.-con. and precast prestressed concrete beam bridge on 32nd Street over Grand Rapids Expressway 1 mi. south of Grand Rapids. F B 6 of 41-24-6 C1-RN (F 140 18), Kent Co. CD 5/23.

**U. S. Eng.**, 600 E. Jefferson Ave., Detroit, Mich., rejected bids May 10, water main and meter pit, Detroit arsenal, Center Line, DETROIT, MICH. Will readvertise. CD 5/3.

**Denton Constr. Co.**, 20415 Michigan Ave., Grosse Pointe, Mich., CA **$321,256**, 58,500 sq. yds. of conc. paving 17 Projs. covering 3½ mi. No. 1-17 FLINT, MICH., City, Dpt. P. Wks., 2323 S. Saginaw St., Flint, Mich. Bids May 20. CD 5/10.

**Chris Nelsen**, 415 East Hudson St., Royal Oak, Mich., CA **$141,541**, sewers, PONTIAC, MICH., City, Ada Evans, clk., City Hall, Pontiac, Mich. Bids Apr. 29. CD 4/23.

**City**, Ada Evans, city clk., City Hall, Pontiac, Mich., rejected bids May 27, rein. conc. on Columbia from Baldwin to Stanley and on Featherstone Rd. from Mt. Clemense to East City Limits, PONTIAC, MICH. CD 5/20.

† **Forrester Constr. Co.**, 600 Siff Bldg., Flint, Mich., CA **$110,608**, aircraft SHELTER FOUNDATION, Selfridge Field, Air Force Base, Mt. Clemens, SELFRIDGE, MICH., U. S. Eng., 1101 Washington Blvd., Detroit, Mich. Bids May 29. CD 5/20.

## BUILDINGS—LB & CA

**Elasticrete Constr. Co.**, River St., Alpena, Mich., CA est. **$500,000**, CHURCH, educational bldg., and Chapel, etc., ALPENA, MICH., First Presbyterian Parish, Alpena, Mich. Hurless E. Bankes, 16606 James Couzens, Detroit, Mich., archt. Bids Apr. 23. CD 4/23.

**Henry W. DeKoning Constr. Co.**, 320 Municipal Bldg., Ann Arbor, Mich., CA **$154,340**, PLANT addn., Green St., ANN ARBOR, MICH. Buhr Machine Tool Co., 839 Green St., Ann Arbor, Mich.

## BUILDINGS—LB & CA

▲ **Brunswick Plaza, Inc.**, c/o L. S. Laronge, Hippodrome Bldg., Cleveland, O. Owner Builds. **$15,000,000**. 1,500 HOMES 80-acre tract at northeast corner Pearl Rd. and Route 138, BRUNSWICK, O.

▲ **Brunswick Plaza, Inc.**, c/o Louis S. Laronge, Hippodrome Bldg., Cleveland, O. Owner Builds. **$3,000,000**. 38-store SHOPPING CENTER with 250,000 sq. ft. space, incl. 2 story department store, 2,000-car paved parking lot at corner Pearl Rd. and Route 138, BRUNSWICK, O. Weinberg & Teare, Citizens Bldg., Cleveland, archts. CD 6/12.

▲ **Gust K. Newberg**, 2040 N. Ashland St., Chicago, Ill. CA **$62,773,000**, TWO ADDNL. UNITS to power plant, NEW ALBANY, IND., Public Service Co. of Indiana, 1100 Main St., Plainfield, Ind., Sargent & Lundy, 140 S. Dearborn St., Ill., engr.

**Harry Verkler Constr. Co.**, 645 Wilber St., South Bend, Ind., CA **$500,000**. 3 story EDUCATIONAL bldg., 327 N. Main St. SOUTH BEND, IND. First Methodist Church, 325 N. Main St., South Bend, Ind. Bids May 24. CD 5/14.

**Mayfair Constr. Co.**, 5660 N. Kedzie St., Chicago, Ill., LB **$584,800** (3 bidders) general contract, national guard ARMORY, JOLIET, ILL. State, State Capitol, Springfield, Ill.

**Ockerlund Constr. Co.**, 4909 N. Lincoln Ave., Chicago, Ill., LB **$945,777**, Romona Elementary SCHOOL, Locust and Romona Rds., WILMETTE, ILL., School Dist. 39, 738-10th St., Wilmette, Ill. Ganster & Hennighausen, 222 Washington St., Waukegan, Ill., archts. CD 5/7.

**Koslow Constr. Co.**, 6336 N. Cicero Ave., Chicago, Ill., LB **$466,000**, sewage treatment plant, WOODDALE, ILL., Village, Village Hall, W. L. Ashdown Engr. Co., 1023 Burlington, Downers Grove, Ill., engr.

**Porter Bros.**, 2000 W. Madison, Maywood, Ill., LB **$439,800**, sanitary sewers, WOODDALE, ILL., Village, Village Hall, W. L. Ashdown Engr. Co., 1023 Burlington Downers Grove, Ill., engr.

**Froemming Bros.**, 4380 N. Green Bay Ave., Milwaukee, Wis., CA **$53,462** (3 bidders) water mains in W. Burnham St., MILWAUKEE, WIS., City, City Hall, E. A. Schmidt, city engr. Bids May 28, awarded June 5.

**W. J. Lazynski**, 4445 N. 124 St., Milwaukee, Wis., CA **$227,877** (6 bidders) sewers in N. 64 St. and W. College Ave., MILWAUKEE, WIS., City, **City Hall**, E. A. Schmidt, city engr. Bids May 27, awarded June 4, CD 5/22/57.

**J. Cape & Sons**, 701 Water St., Racine, Wis., LB **$186,431**, (4 bidders) paving on Lathrop Ave. and N. Racine St., RACINE, WIS., City, City Hall, Bids June 4.

**P. F. Gavin & Sons Constr. Co.**, Lake Geneva, Wis., CA **$120,000**, 1 story, 60x200 ft. conc., steel, brick and block FACTORY addn., LAKE GENEVA, WIS. A. Frostel Packing, Ltd., Lake Geneva, W. E. Browne, 324 E. Wisconsin Ave., Milwaukee 2, Wis., engr.

▲ **Woerful Corp.**, 5345 N. Hopkins St., Milwaukee, Wis., CA **$1,513,420**, general contract HOSPITAL addn., MILWAUKEE, WIS., St. Mary's Hospital, 2320 N. Lake Dr., Milwaukee, Wis. Maguolo & Quick, 3401 S. 39 St., Milwaukee, Wis., archts. Bids May 29. CD 5/20.

▲ **Hunzinger Constr. Co.**, 4577 N. 124 St., Milwaukee, Wis., CA Est. **$1,500,000**, general contract, 1 story, 336x400 ft. FACTORY addn., OAK CREEK, WIS., A. C. Spark Plug Div., General Motors Corp., 1925 E. Kenilworth Ave., Milwaukee, Wis., Argonaut Realty Co., 485 W. Milwaukee Ave., Detroit, Mich., engr. Bids June 4. CD 5/21.

**Elasticrete Constr. Co.**, River St., Alpena, **Mich., CA** est. **$500,000**, CHURCH, educational bldg., and Chapel, etc., ALPENA, MICH., First Presbyterian Parish, Alpena, Mich. Hurless E. Bankes, 16606 James Couzens, Detroit, Mich., archt. Bids Apr. 23. CD 4/23.

**Henry W. DeKoning Constr. Co.**, 320 Municipal Bldg., Ann Arbor, Mich., CA **$154,340**, PLANT addn., Green St., ANN ARBOR, MICH. Buhr Machine Tool Co., 839 Green St., Ann Arbor, Mich.

▲ **Bd. Educ.**, Chelsea School Dist., Howard Flintoft, secy., Chelsea, Mich., rejected bids Apr. 30, HIGH SCHOOL, CHELSEA, MICH. **$2,000,000**. CD 4/5.

**Sorenson-Gross Constr. Co.**, 2505 Lapeer St., Flint, Mich., CA **$834,381**, general contract, public LIBRARY, FLINT, MICH. City, George D. Stefens, secy., Bd. Educ., Flint, Mich. Bids May 21. CD 6/7, under LB.

**Palmer Smith Co.**, 415 Brainard St., Detroit, Mich., CA Est. **$900,000**, junior high SCHOOL, MT. CLEMENS, MICH., Bd. of Educ., L'Anse Public Schools, 38495 L'Anse Creuse Rd., Mt. Clemens, Mich. Bids May 15. CD 4/24.

# WEST OF MISSISSIPPI

## HEAVY CONSTRUCTION—BA

**IOWA**—BA 6/25—State Hy. Comn. John G. Butter, ch. engr., Ames,

**Black Hawk Co.**—768 ft. x 24 ft. cont. I-beam bridge on County Trunk Road "W" over Cedar River at Gilbertville. SN-438. Over $73,000.

**Cedar Co.**—40 ft. 9½ in. x 24 ft. prestressed concrete beam bridge on local road near center Sec. 6-80-3W. S-180(7).

**Crawford Co.**—180 ft. x 20 ft. prestressed concrete beam bridge on local road near S½ cor. Sec. 17-85-41. S-1305(2).

**Decatur Co.**—180 ft. x 20 ft. prestressed concrete beam bridge on local road near W¼ cor. Sec. 33-68-25. SN-968.

**Delaware Co.**—12 ft. x 8 ft. x 54 ft. rein.-con. box culvert on relocation of US 20 near S¼ cor. Sec. 35-89-3W. F-1072(1). All foregoing under $73,000.

**Dubuque Co.**—10-rein.-con. box culverts and extensions at various locations on relocation of US 20 from southwest cor. Sec. 31-89-2W, southeasterly to point near center Sec. 12-88-2W; also cont. concrete girder bridge. F-305(7). Over $73,000.

**Fayette Co.**—24 ft x 20.75 ft precast concrete bridge on local road on south line SW¼ Sec. 6-92-10 and on south line SE¼ Sec. 2-92-10, also 30 ft x 20.75 ft precast concrete bridge. SN-1981.

30 ft x 20.75 ft precast concrete bridge on local road near S¼ cor. Sec. 27-91-8. SN-2739.

18 ft x 24 ft precast concrete bridge on local road in Sec. 14-93-8. SN-2751.

**Hancock Co.**—3 span 142.5 ft x 24 ft prestressed concrete beam bridge on local road over Iowa River near southwest cor. Sec. 29-94-23. S-676(2).

**Henry Co.**—100 ft x 20 ft cont. concrete slab bridge on local road in S½ Sec. 5-71-5. S-1874(1).

**Iowa Co.**—1 structural plate pipe culvert on local road near northeast cor. Sec. 36-79-12. SN-1539.

**Linn Co.**—adding sidewalk to present bridge on US-30 over C. R. I. & P., C. & N. W. and C. M. St. P. & P. Railroads in Cedar Rapids. All foregoing under $73,000.

**Lucas and Warren Counties**—69 rein.-con. box and pipe culverts and extension at various locations on US 65 from US 34 north to point on west line NW¼ Sec. 27-75-23. FN-1074. Over $73,000.

**Lucas Co.**—2-rein.-con. box culverts at various locations on local road from W¼ cor. SW¼ Sec. 21-73-23 east and north to N¼ cor. NW¼ Sec. 22-73-23, incl. 150 ft x 20 ft cont. I-beam bridge. S-1418(1).

**Madison Co.**—replace 80 ft x 20 ft pony truss with 80 ft x 30 ft concrete slab bridge on US 169 approx. 1 mi. north of Winterset. FN-366.

**Mills Co.**—125 ft x 20 ft cont. concrete slab bridge on local road in NW¼ Sec. 25-73-41. SN-993.

**Mitchell Co.**—replace 20 ft x 60 ft pony truss with 30 ft x 60 ft deck girder bridge on Iowa 105 in NE¼ Sec. 23-99-18. FN-573W.

**Monona Co.**—twin 12 ft x 12 ft x 43 ft rein.-con. box culvert on local road near center Sec. 9-84-44. SN-751.

2 rein.-con. box culverts on local road in Sec. 28 and 26-82-42. SN-1090.

**Monroe Co.**—6 rein.-con. box and pipe culverts at various locations on local road from point in SW¼ Sec. 8-72-18 northerly and east to Hiteman, incl. 20 ft x 55 ft prestressed conc. bridge. SN-1933.

**Poweshiek Co.**—8 ft x 6 ft x 42.5 ft rein.-con. box culvert on local road near W¼ cor. Sec. 16-79-15. S-1152(2).

3 rein.-con. box culverts annd extensions at various locations on County Trunk Road "B" from Barnes City north, west and north to northwest cor. Sec. 21-78-14. S-1916(2).

11 rein.-con. box and pipe culverts and extension at various locations on County Trunk Road "E" from Ewart south and east to US 63. S-2106(1).

6 rein.-con. box culverts and extension at various locations on County Trunk Road "K" from US 6 near southeast cor. Sec. 11-80-14 northerly to road junction in S½ Sec. 23-81-14. S-2528(3).

**Scott Co.**—24 ft x 55 ft prestressed concrete beam bridge on local road near W½ cor. Sec. 23-79-2E. S-2402(2).

**Tama Co.**—12 rein.-con. box culverts and extensions at various locations on County Trunk Road "H" out of Garwin north, west and north to Iowa 96. S-894(3).

14 rein.-con. box culverts and extensions at various locations on County Trunk Road "C" from Iowa 318 at east edge of Clutier, north to Iowa 8, also wid'n. 16 ft x 18 ft slab bridge to 16 ft x 24 ft. S-2528(2). All foregoing under $73,000.

**Wapello Co.**—2 rein.-con. box culverts at various locations on local road from W¼ cor. Sec. 17-72-13 northeast to Dahlonega; also from Dahlonega north and east to northeast cor. Sec. 1-72-13; also 24 ft x 24 ft precast concrete bridge; 24 ft x 55 ft prestensioned prestressed concrete beam bridge; 24 ft x 55 ft pretensioned prestressed concrete beam bridge; 24 ft x 30 ft precast concrete bridge. S-2063(1). Over $73,000.

**Warren Co.**—3 rein.-con. box culvert extensions at various locations on County Trunk Road "K" from S¼ cor. NW¼ Sec. 10-74-25 north to St. Mary's. S-341(1).

**Wayne Co.**—20 ft. x 125 ft. cont. concrete slab bridge on local road on south line SW¼ Sec. 5-70-23 or 20 ft. x 130 ft. prestressed concrete beam bridge. S-884(3).

20 ft. x 100 ft. cont. concrete slab bridge on County Trunk Road "H" near northwest cor. Sec. 3-70-22 or 20 ft. x 105 ft. prestressed concrete beam bridge. S-1119(4).

42 ft. x 54 in. F-1 pipe culvert on local road near W¼ cor. NW¼ Sec. 20-68-22. SN-2249.

twin 10 ft. x 10 ft. rein.-con. box culvert on local road near W¼ cor. Sec. 22-67-23. S-2686(2).

**Winneshiek Co.**—1 rein.-con. box culvert on local road in SW¼ Sec. 31-97-9. S-1742(3).

24 ft. x 205 ft. prestressed concrete beam bridge on local road near S¼ cor. Sec. 9-96-9. S-1742(4). All foregoing under $73,000.

**Woodbury Co.**—twin 30 ft. x 173 ft. cont. concrete slab bridges in Sioux City on US 77 (Gordon Drive) at Int. of Isabella Street extension. I-03-8(1). Over $73,000.

56 ft. x 207 ft. 1-in. pretensioned prestressed concrete beam bridge in Sioux City near Int. of Gordon Drive extension and Riverside Blvd. extension. I-03-8(2). Over $73,000.

**Worth Co.**—11 rein.-con. box culvert extensons at various locations on local road from southwest cor. Sec. 15-100-21 east and south to E¼ cor. Sec. 24-100-21. S-1834(1).

2 rein.-con. box culvert extensions at various locations on local road from S¼ cor. Sec. 4-98-21 east to southeast cor. Sec. 2-98-21. S-2113(4).

24 ft. x 180 ft. prestressed concrete beam bridge on local road near southwest cor. Sec. 36-99-20. S-2494(2). Foregoing under $73,000.

**IOWA**—BA 6/25—State Hy. Comn., John G. Butter, ch. engr., Ames,

**Appanoose Co.**—surf. Class A crushed stone on road or Class C grav. 0.359 mi. on Iowa 369 out of Unionville south 0.365 mi. FHP-1-A.

surf. with crushed stone or grav. 3.999 mi. on Iowa 277 out of Numa to near south ¼ cor. section 10-68-18 and from Iowa 60 west approx. 0.70 mi. FN-1042.

surf. with crushed stone or grav. 1.977 mi. on local road from northwest cor. section 19-69-18 south to Iowa 2. S-1264 (3).

surf. with crushed stone or grav. 6.179 mi. local road out of Jerome east, north, east and north to Iowa 2 at North ¼ cor. Northwest ¼ section 33-69-18. S-2153 (3).

surf. with crushed stone or grav. 2.926 mi. on local road from south ¼ cor. sec. 36-70-19 northerly to West ¼ cor. sec. 24-70-19. S-2700 (1).

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**STRONG...for heavy loads**

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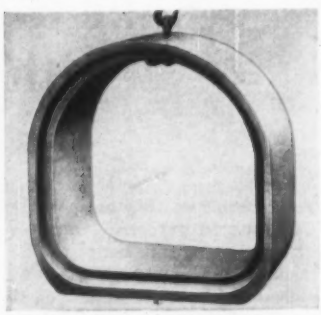

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**Carroll and Crawford Counties**—grading 1.978 mi. local road from southwest cor. Sec. 7-85-36 north to northwest cor. Sec. 6-85-36. S-200 (5).

**Carroll Co.**—grading 3.63 mi. local road from southwest cor. Sec. 31-83-35 north to C. & N.W. Railroad. S-2408 (4).

**Cerro Gordo Co.**—stab. surf. 5.015 mi. local road from southwest cor. Sec. 29-95-19 east to Floyd County line. S-1040 (6).

stab. surf. 1.988 mi. on local road from southwest cor. Sec. 5-94-19 north to northwest cor. Sec. 32-95-19. S-1041.

stab. surf. 6.963 mi. on local road from southwest cor. Sec. 30-96-21 east to southeast cor. Sec. 30-96-20. S-2453 (4).

stab. surf. 4.601 mi. on local road from southwest cor. Sec. 1-05-21 north to Iowa 106. S-2653 (2).

**Clarke Co.**—grading 2.986 mi. on local road from southwest cor. Sec. 7-71-26 north to northwest cor. Sec. 31-72-26. S-1601 (2).

grading 2.189 mi. on County Trunk Road "M" from West ¼ cor. Sec. 27-71-25 easterly to northeast cor. Sec. 26-71-25. S-1942 (2).

grading 1.27 mi. on local road from point near southeast cor. Sec. 3-71-25 north, west and north to N¼ cor. NE¼ Sec. 3-71-25. SN-2350.

grading 1.531 mi. on County Trunk Road "M" from southwest cor. Sec. 34-71-25 north to W¼ cor. Sec. 27-71-25. S-2524 (3).

**Clayton Co.**—surf. 0.614 mi. on local road from point near center SE¼ Sec. 22-94-3W southerly 0.643 mi. SN-2152.

grading 1.428 mi. on local road from center Sec. 26-95-6 north to N¼ cor. Sec. 23-95-6. SN-2397.

**Clinton Co.**—b. conc. pavt. 1.004 mi. on Iawo 291 out of Low Moor north to US 30. FN-1102.

**Crawford Co.**—surf. 7.051 mi. on local road from Iowa 141 on west line Sec. 30-84-40 north and east to US 59 on south line Sec. 19-84-39. SN-2711.

surf. 3.996 mi. on local road from southwest cor. Sec. 12-83-40 north to northwest cor. Sec. 25-84-40. SN-2712.

**Delaware Co.**—grading 1.755 mi. on relocation of US 20 from S¼ cor. SW¼ Sec. 35-89-3W east to Dubuque County Line, F-1072 (1). All foregoing under $73,000.

**Dubuque Co.**—grading 6.025 mi. on relocation of US 20 from southwest cor. Sec. 31-89-2W southeasterly to point near center Sec. 12-88-2W. F-305 (7). Over $73,000.

b. conc. pavt. 4.979 mi. on County Trunk Road "C" from point in S½ Sec. 14-89-1E easterly to Dubuque. S-1356 (1). Over $73,000.

b. conc. pavt. 3.899 mi. on local road from County Trunk Road "C" on west corporation line of Dubuque northwesterly and easterly to US 52 in Sec. 11-89-2E. FM-408. Over $73,000.

**Fayette Co.**—rolled stone base and bit. surf. treatment 1.278 mi. on County Trunk Road "A" out of St. Lucas northeasterly to northwest cor. Sec. 5-95-9. SN-875.

**Hancock Co.**—rolled stone base and bit. surf. treatment 2.171 mi. on local road from northwest cor. Sec. 12-96-23 south to US 18 SN-2515.

rolled stone base and bit. surf. treatment 1.001 mi. on local road along north line Sec. 12-96-23. Co. Proj. CO-2657.

soil aggreg. surf. 7.401 mi. on County Trunk Road "E" from southwest cor. Sec. 20-94-26 east to Kanawha. SN-140.

soil aggreg. surf. 5.685 mi. on County Trunk Road "E" out of Goodell east to southeast cor. Sec. 25-94-23. SN-676.

soil aggreg. surf. 9.516 mi. on County Trunk Road "X" from US 18 near W¼ cor. Sec. 34-96-26 north to Iowa III. SN-795.

soil aggreg. surf. 2.43 mi. on County Trunk Road "S" from S¼ cor. Sec. 10-97-25 north, west and north to northwest cor. Sec. 3-97-25. SN-913.

soil aggreg. surf. 4.496 mi. on County Trunk Road "B" from US 65 at Southwest cor. Sec. 25-97-24 east to S¼ cor. Sec. 27-97-23 SN-1048.

soil aggreg. surf. 9.987 mi. on County Trunk Road "A" from US 69 at northwest cor. Sec. 12-97-24 southeasterly to southeast cor. Sec. 25-97-23 S-1487(1).

soil aggreg. surf. 2.612 mi. on local road from southwest cor. Sec. 5-95-24 north to US 18. S-2743(1). Foregoing under $73,000.

**Hardin Co.**—b. conc. resurf. 10.547 mi. on US 65 from Iowa 57 north to near E¼ cor. NE¼ Sec. 24-89-21. FN-568W. Over $73,000.

b. conc. resurf. 13.37 mi. on US 65 from Story County line north and east to Iowa 57. P-1025W. Over $73,000.

**Harrison Co.**—surf. 3.728 mi. on local road from Iowa 191 on south line Sec. 17-78-41 easterly to Shelby County line, except along south line SW¼ Sec. 15-78-41. FM-446.

surf. 6.119 mi. of chemically treated surf. on local road from Logan northwesterly into Magnolia. SN-1515(1).

bit. surf. treatment 3.455 mi. on County Trunk Road "E" from Missouri Valley southeasterly to Beebeetown. S-1321(2).

**Iarrison and Pottawattamie Counties**—surf. 14.019 mi. at various locations on frontage roads and grade separations along Int. Rte. from point near southwest cor. Sec. 27-76-44 northerly to US 30 west of Missouri Valley. I-920-N.

**Harrison and Shelby Counties**—grading 3.586 mi. on local road from point near S¼ cor. Sec. 1-80-41 east to Shelby County line, thence north approx. 1.5 mi. thence west to point near center Sec. 35-81-41. FM-157.

**Henry Co.**—grading 2.518 mi. on local road from southwest cor. Sec. 6-72-5W east to S¼ cor. Sec. 4-72-5W. S-1760(3).

b. conc. pavt. 5.126 mi. on local road out of Hillsboro easterly to Iowa 125 in Salem. S-1880(3). Foregoing under $73,000.

**Ida Co.**—c. conc. pavt. 5.887 mi. on local road out of Ida Grove south to southwest cor. Sec. 14-86-40. S.2234(1). Over $73,000.

**Jones Co.**—grading 10.563 mi. on County Trunk Road "E" from Iowa 38 near S¼ cor. Sec. 25-83-3W easterly to Oxford Mills. S-74(4). Over $73,000.

grading 0.587 mi. on County Trunk Road "F" from S¼ cor. SE¼ Sec. 36-83-2W north. SN-2731.

b. conc. pavt. 4.448 mi. on Iowa 38 out of Olin north to Iowa 64. FN-234. Over $73,000.

**Lucas and Warren Counties**—grading 17.156 mi. on US 65 from US 34 in Lucas northerly to near W¼ cor. Sec. 27-75-23. SN-1074. Over $73,000.

**Mills Co.**—grading 4.418 mi. on local road from southwest cor. Sec. 13-71-42 north to W¼ cor. Sec. 25-72-42. FM-464.

grading 0.027 mi. on local road on south line SW¼ Sec. 1-71-42. SN-1558.

**Monoma Co.**—grading 3.748 mi. on local road from point near S¼ cor. Sec. 14-84-44 northwesterly to point in NW¼ Sec. 4-84-44. SN-751.

grading 4.645 mi. on local road from point in NE¼ Sec. 33-82-42 north and east to Iowa 37 near W¼ cor. NW¼ Sec. 24-82-42. SN-1090.

**Monroe Co.**—grading 3.557 mi. on County Trunk Road "H" from point in SW¼ Sec. 8-72-18 northeast and east to Hiteman. SN-1933.

**Osceola Co.**—surf. 2.008 mi. on local road from south west cor. Sec. 12-98-42 north to northwest cor. Sec. 1-98-42. FM-460.

surf. 1.19 mi. on local road from Sibley north to Iowa 33. S-493(6).

surf. 2.982. mi. on local road from southwest cor. Sec. 3-98-39 east to county line. S-872(11).

surf. 2.913 mi. on local road from near southwest cor. Sec. 20-98-39 north, east and north to May City. S-2378(3).

surf. 1.531 mi. on local road from southwest cor. Sec. 9-99-40 north to W¼ cor. Sec. 4-99-40. S-2577(1).

surf. 0.97 mi. on local road on south line Sec. 14-100-40. S-2578.

**Plymouth Co.**—grading 0.441 mi. on local road from Iowa 12 in NE¼ Sec. 31-93-48 northwesterly to Big Sioux River bridge. SN-2474.

b. conc. pavt. 1.984 mi. on local road from southwest cor. Sec. 17-91-44 east to southeast cor. Sec. 16-91-44. S-1058(2). Foregoing under $73,000.

b. conc pavt. 4.976 mi. on County Trunk Road "A" from southwest cor. Sec. 27-92-45 east to southeast cor. Sec. 29-92-44. S-694(2). Over $73,000.

b. conc. pavt. 3.964 mi. on local road from southwest cor. Sec. 15-91-45 east to southeast cor. Sec. 18-91-44. LB 8-57. Over $73,000.

**Polk Co.**—c. conc. pavt. 4.371 mi. on Primary Road from Iowa 28 near southeast cor. Sec. 25-78-25 west to point near S¼ cor. SW¼ Sec. 29-78-25, except approx. 0.37 mi. at C. G. W. Railway. F-859 (3). Over $73,000.

c. conc. pavt. 0.275 mi. on Primary Road at C. G. W. RR west of Des Moines Municipal Airport. FG-859 (4).

grading 5.833 mi. on County Trunk Road "P" from Mitchellville north to US 65 near W¼ cor. SW¼ Sec. 1-79-22. S-334 (3).

grading 1.462 mi. on County Trunk Road "A" from southwest cor. Sec. 15-81-24 east into Alleman. SN-1939.

grading 2.998 mi. on local road from southwest cor. Sec. 34-81-24 north to northwest cor. Sec. 22-81-24. S-2426 (2).

grading 1.011 mi. on local road from near S¼ cor. Sec. 34-78-22 easterly into Runnells. SN-2427.

**Pottawattamie Co.**—b. conc. pavt. 4.35 mi. on County Trunk Road "V" from southwest cor. Sec. 2-76-41 north to Iowa 61 in Minden. S-146 (2). Over $73,000.

b. conc. pavt. 4.35 mi. on County Trunk Road "F" from Iowa 100 at Treynor north to US 6. S-457 (5). Over $73,000.

b. conc. pavt. 1.119 mi. on County Trunk Road "N" from S¼ cor. Sec. 28-77-38 north. S-784 (5).

b. conc. pavt. 0.497 mi. on local road in Carson from Iowa 100 at southwest cor. Sec. 2-74-40 north. S-1549 (3).

**Pottawattamie and Shelby Counties**—b. conc. pavt. 2.087 mi. on Iowa 168 from Iowa 64 north into Shelby except approx. 0.42 mi. near center Sec. 4-77-40. F-555 (2).

**Poweshiek Co.**—grading 1.462 mi. on local road from Ewart near W¼ cor. Sec. 21-79-15 north to point near southwest cor. Sec. 9-79-15. S-1152 (2).

grading 3.83 mi. on County Trunk Road "B" from Barnes City north, west and north to northwest cor. Sec. 21-73-14. 1-1916 (2).

grading 3.568 mi. on County Trunk Road "E" from Ewart south and east to US 63. S-2106 (1).

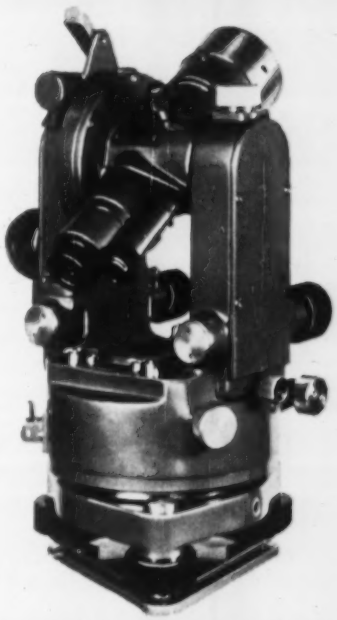
grading 4.232 mi. on County Trunk Road "K" from US 6 near southeast cor. Sec. 11-80-14 northerly to road junction in S½ Sec. 23-81-14. S-2528 (3).

surf. 1.705 mi. on local road from S¼ cor. Sec. 7-79-14 east and north to N¼ cor. NW¼ Sec. 8-79-14. SN 2294.

**Ringgold Co.**—grading 4.342 mi. on County Trunk Road "D" from Iowa 25 at Blockton east into Redding, except approx. 0.2 mi. near S¼ cor. SW¼ Sec. 10-67-31. S-2650 (1). Foregoing under $73,000.

**Sac Co.**—c. conc. widening and b. conc. surf. 0.904 mi. on US 20 in Sac City from 17th Street east to 3rd Street. F-333 (6). Over $73,000.


F/S MODEL 4150 NE



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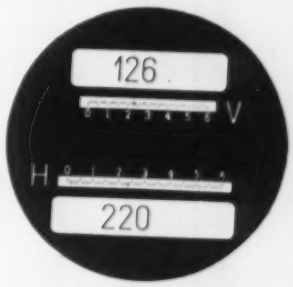
- Optical plummet on the alidade
- Single-lever repetition control
- Ball bearing rotation

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**Story Co.**—b. conc. pavt. 1.494 mi. on County Trunk Road "D" from Roland east to southeast cor. Sec. 13-85-23. C-4-57.

b. conc. pavt. 3.057 mi. on County Trunk Road "K" from S¼ cor. Sec. 32-83-24 at Kelley east to US 69. SN-228.

b. conc. pavt. 3.793 mi. on County Trunk Road "H" from US 30 at Nevada north to northwest cor. Sec. 19-84-22 S-601 (5).

rolled stone base and bit. surf. 0.493 mi. on Iowa 210 from south corporation line of Maxwell north to 5th Street. FN-947.

**Tama Co.**—grading 6.394 mi. on County Trunk Road "H" from S¼ cor. Sec. 11-84-16 north, west and north to Iowa 96. S-894 (3).

grading 7.042 mi. on County Trunk Road "C" from Iowa 318 at east edge of Clutier, north to Iowa 8. S-2528 (2).

**Taylor Co.**—grading 1.504 mi. on local road from N¼ cor. Sec. 32-69-35 west to Page County line. FM-443.

grading 0.994 mi. on local road from southwest cor. Sec. 1-70-34 north to northwest cor. Sec. 1-70-34. FM-458.

grading 0.91 mi. on local road from E¼ cor. NW¼ Sec. 29-67-35 south to Missouri State Line. SN-1914A.

grading 1.311 mi. on local road from southeast cor. Sec. 22-67-35 west. SN-1914B.

grading 2.643 mi. on local road from southwest cor. Sec. 18-69-34 east to southeast cor. Sec. 16-69-34 except approx. 0.35 mi. on south line SW¼ Sec. 17-79-34. SN-1992.

**Union Co.**—grading 2.089 mi. on local road from northeast cor. Sec. 26-73-31 west to Iowa 25. S-2744 (3).

grading 1.985 mi. on local road from northwest cor. Sec. 25-73-31 south to Iowa 25. S-1261 (2).

**Wapello Co.**—grading 6.026 mi. on local road from Ottumwa near W¼ cor. Sec. 17-72-13 northeasterly to Dahlonega also from S¼ cor. SW¼ Sec. 4-72-13 north and east to southeast cor. Sec. 36-73-13. S-2063 (1).

**Warren Co.**—grading 5.477 mi. on County Trunk Road "K" from S¼ cor. NW¼ Sec. 10-74-25 north to St. Marys. S-0341 (1).

**Wayne Co.**—grading 0.823 mi. on local road on west line sec. 1-69-21. S-1893 (2).

grading 0.732 mi. on local road in Sec. 21 and 22-67-23 S-2686 (2).

**Winnebago Co.**—stab. surf. 2.991 mi. on local road from southwest cor. Sec. 15-100-24 east to Scarville S-155 (3).

stab. surf. 11.84 mi. on local road from southwest cor. Sec. 16-100-26 east to southeast cor. Sec. 17-100-24. SN-912.

stab. surf. 8.427 mi. on County Trunk Road "K" from southwest cor. Sec. 34-98-25 north, east and north to Thompson. SN-913.

**Winneshiek Co.**—surf. 2.97 mi. on local road from Iowa 24 near N¼ cor. Sec. 17-96-9 easterly. SN-1742.

rolled stone base and bit. surf. treatment 3.917 mi. on County Trunk Road "A" from Fayette County Line northerly to Iowa 24. SN-875.

grading 0.26 mi. on local road in SW¼ Sec. 31-97-9W. S-1742 (3).

**Woodbury Co.**—c. conc. widening and b. conc. resurf. 1.969 mi. on Iowa 12 from north corporation line of Sioux City southerly. P-1085. Over $73,000.

**Worth Co.**—grading 2.016 mi. on local road from S¼ cor. Sec. 2-99-21 nor.a to N¼ cor. Sec. 35-100-21. FM-462.

grading 3.419 mi. on local road from southwest cor. Sec. 15-100-21 east and south to E¼ cor. Sec. 24-100-21. S-1834 (1).

grading 2.973 mi. on local road from S¼ cor. Sec. 17-99-20 east to US 65; also from southwest cor. Sec. 15-99-20 east to southeast cor. Sec. 14-09-20. S-2112 (1).

grading 2.494 mi. on local road from S¼ cor. Sec. 4-98-21 east to southeast cor. Sec. 2-98-21. S-2113 (4).

grading 0.095 mi. on local road on west line Sec. 36-98-20. S-2494 (3).

grading 1.116 mi. on local road from near southwest cor. Sec. 2-2919 easterly to near southeast cor. Sec. 2-99-19. S-2623 (2).

grading 2.006 mi. on local road from southwest cor. Sec. 23-99-19 east to southeast cor. Sec. 24-99-19. S-2681 (1). Foregoing under $73,000.

**KANSAS**—BA 6/27—State Hy. Comn., c/o City Clerk, Parsons.

**Cherokee Co.**—two spans 8 ft x 6 ft x 44 ft rein.-con. box culvert on US-69 approx. 1¼ mi. north of Kansas-Oklahoma State Line. Proj. No. 69-11 K 4263 (2).

**Linn Co.**—rein.-con. box culvert (2 structures) and light type surf. 2.501 mi. beginning at north city limits of LaCygne; thence north on County Hy. Proj. 54 S 918 (2).

**KANSAS**—BA 6/27—State Hy. Comn., c/o City Clerk, Parsons.

**Allen Co.**—grading, AB base course and double asph. surf. treat. 0.234 mi. beginning approx. 5½ mi. south of LaHarpe, thence south on County Hy. also 10 ft x 7.5 ft x 26 ft three-span RCRF bridge, Br. Sta. 407 plus 50. Proj. No. 1 S 179 (10).

pavt. patching, widening and b. conc. 4.799 mi. beginning at end of 22 ft. concrete pavt. west of Iola; thence east on US-54 ao Iola, Proj. No. 54-1 K 4267 (2).

pavt. patching, widening and b. conc. 1.948 mi. beginning at end of 22 ft. concrete pavt. north of Iola; thence north on US-59, Proj. No. 59-1 K 4268 (2).

b. conc. 1.116 mi. beginning at Allen-Woodsen County line; thence easterly on US-54. Proj. No. 54-1 K 4269 (2).

**Anderson Co.**—pavt. patching and b. conc. 8.128 mi. beginning approx. ½ mi. south of Garnett; thence southerly on US-59. Proj. No. 59-2 K 4270 (2).

bit. sealing 16.595 mi. beginning at south jct. of K-31 and US-59; thence south and east on K-31 to Anderson-Linn County Line, except pavt. in Kincaid (4768 AB (4); also bit. sealing 12.533 mi. beginning at Franklin-Anderson County Line; thence south and west on US-169 (4759 (4). Proj. No. 31-2-4768 AB (4) 169-2-4769 (4).

**Bourbon Co.**—bit. sealing 3.01 mi. beginning at Crawford-Bourbon County line; thence north on K-3 to east jct. of K-39 and K-3. Proj. No. 3-6-4770 (4); also bit. sealing 3.824 mi. beginning approx. ¾ mi. west of Hiatville; thence east on K-39 to jct. K-39 and K-7. Proj. No. 39-6-4771 (4).

**Brown Co.**—sub-grade modif. and SAST (Stab. shldrs). 11.837 mi. beginning at jct. of US-75 and US-36 at Fairview; thence south on US-75. Proj. 75-7 K 1283 (2).

**Chautauqua Co.**—bit. sealing 13.467 mi. beginning at north jct. of K-99 and US-166; thence northerly on K-99 to Chautauqua-Elk County Line. Proj. No. 99-10--4772 (4).

**Crawford Co.**—bit. sealing 11.481 mi. beginning at jct. of K-3 and K-57; thence north on K-3 to Crawford-Bourbon County line. Proj. No. 3-19-4773 AB (4); bit. sealing 11.348 mi. beginning at Neosho-Crawford County line; thence east on K-57 to 0.244 mi. east of west city limits of Girard, except 1.742 mi. Proj. F 034-2 (2) west of Girard. Proj. No. 47-19-4774 AB (4); bit. sealing 5.13 mi. beginning at east city limits of Walnut; thence east on K-146 to jct. of K-146 and K-3. Proj. No. 146-19-4775 (4); bit. sealing 25.013 mi. beginning at jct. of US-160 and K-103 north and east to end of pavt. west of Pittsburg and from north end of pavt. in Frontenac; thence north and east on US-160. Proj. No. 160-19-4776 (ABC (4).

**Crawford Co.**—grading 0.211 mi. beginning approx. ½ mi. south of Walnut; thence east on County Hy. Incl. 40 ft-52 ft-40 ft rein.-con. girder, Br. Sta. 3 plus 40. Proj. No. 19 S 871 (4).

**Franklin Co.**—AB Base course and single asph. surf. treat. 1.707 mi. beginning at Franklin-Douglas County line; thence south on K-33. Proj. No. 33-30 S 1256 (2).

bit. sealing 1.162 mi. beginning at east jct. of K-68 and K-33; thence east on K-68. Proj. No. 68-30½-4777 (4); bit. sealing 2.388 mi. beginning at Franklin Anderson County line; thence north and east on US-169 to Franklin-Miami County line. Proj. No. 169-30-4778 (4).

**Greenwood Co.**—b. conc. 1.588 mi. beginning at Greenwood Woodson County line; thence west on US-54. Proj. No. 54-37 F 038-4 (3).

**Johnson Co.**—grading, sub-grade modif. and double treat. surf. 0.382 mi. beginning approx. 2 mi. north and 1⅞ mi. west of Lenexa; thence north on County Hy. Proj. No. 46 S 1286 (1).

**Labette Co.**—bit. sealing 2.072 mi. beginning at north city limits of Parsons; thence north on US-59 to Labette-Neosho County line. Proj. No. 59-50-4780 (4).

**Linn. Co.**—bit. sealing 1a. 226 mi. beginning approx. ½ mi. south of Farlinville; thence north on K-7 to Linn-Miami County line. Proj. No. 7-54-4781 (4); bit. sealing 3.824 mi. beginning at Linn-Anderson County line; thence east on K-31 to east jct. of K-31 and K-52. Proj. No. 31-54-4782 (4); bit. sealing 1.112 mi. beginning at east jct. of K-52 and K-31; thence north on K-52 to north city limits of Blue Mound. Proj. No. 52-54-4784 AB (4); sealing 8.208 mi. beginning at jct. of K-35 and K-7; thence east to west end of pavt. in LaCygne. Proj. No. 35-54-4783 AB (4).

**Marshall Co.**—AB base course and SAST (Stab. shldrs.) 3.802 mi. beginning 0.362 mi. east of jct. of US-36 and K-99; thence west on US-36. Proj. No. 36-58-F 092-4(11).

AB base course and SAST (Stab. Shldrs.) 7.039 mi. beginning one mi. east of Marysville; thence east on US-36, except ¼ mi. at Home. Proj. No. 36-58 F 092-4(1).

**Miami Co.**—bit. sealing 26.146 mi. beginning at Miami-Franklin County line; thence east on K-68 to Kansas-Missouri State Line, except concrete pavt. in Louisburg. Proj. No. 68-61-4785 AB(4); bit. sealing 7.327 mi. beginning at Miami-Franklin County line; thence north and east on US-169. Proj. No. 169-61 4786(4).

**Nemaha Co.**—single asph. treat. 3.5 mi. beginning at jct. of K-178 and US-36; thence north and west on K-178. Proj. No. 178-66 K 1286(2).

bit. sealing 14.61 mi. beginning at jct. with K-9 approx. ½ mi. west of Wetmore; thence north on County Hy. to US-36. Proj. No. 66 S 669 (7).

**Neosho Co.**—bit. sealing 9. mi. beginning at jct. of US-146 and US-59; thence east on K-146. Proj. No. 146-67-4787(4); bit. sealing 6.446 mi. beginning at jct. of US-59 and K-47; thence northerly on US-59 detour to jct. with K-146, except brick pavt. in Erie. Proj. No. D59-67-4923(2).

**Woodson Co.**—grading, pavt. wid'n. and b. conc. 12.63 mi. beginning at Greenwood-Woodson County line; thence northeasterly on US-54 to Yates Center. Proj. No. 54-104 F 038-5(12).

b. conc. 3.147 mi. beginning at Woodson-Allen County line; thence westerly on US-54. Proj. No. 54-104 K 4274(2).

**Minn., St. Cloud**—BA 7/1—Stearns Co., F. Ramler, aud., 10.7 mi. between Clark St. in Richmond and CAR 56, 2.9 mi. West. of Avon, S. P. 73-614-01 (SAR 9) Minnesota Proj. S 6148 (4), $200,000. Plans deposit $2.35. W. A. Puhlman, co. hy. engr.

**Minn., Hastings**—BA 7/2—Dakota County, N. G. Yanz, aud., grading and gravel surf. 2.8 mi. between TH 50, and CAR 32, 2.5 mi. North of Lakeville, S.P. 19-601-01, (SAR 1), Minnesota Proj. S. 6320 (6), 0.7 mi. between SAR 35, 0.2 mi. west of Lakeville, and TH 50, S.P. 19-605-01, (SAR 1), Minnesota Proj. S 6322 (2) Plans deposit $1.60; 3/0 mi. between SAR 19, and TH 218, 4.0 mi. north of Rosemount, S. P. 19-615-01 (SAR 7) Minnesota Proj. S 6340 (2), Plans deposit $2.00. $75,000. H. E. Palmer, co. hy. engr.

† **New Mexico**—BA 7/16—Bureau Reclamation, Dpt. Interior, Albuquerque,- N. M., earthwork, clearing and structures for irrigation rehabilitation, Belen Unit 4, Middle Rio Grande Proj., near Belen, Spec. DC 4932. adv. ENR 6/20. CD 9/4.

## BUILDINGS—BA

▲ **Wyo., Casper**—SCHOOL—BA 7/1—Casper-Midwest Bd. of Educ., 930 S. Elm St., Casper, 1 and 2 story 81,000 sq. ft. junior high school, $1,000,000. Goodrich & Wilking, 722 E. Yellowstone St., Casper, archts. Robert Wehrli, 829 Cy Ave., Casper, engr. CD 3/2/56.

**Tex., Plainview**—SCHOOL—BA 7/2—Plainview Independent School Dist., c/o Charles Matthews, supt., brick tile, concrete steel Junior Senior high school and existing junior high school addns. $875,000. Plans deposit $40 general; $20 mechanical. Wilson Patterson & Assocs., 601 Bailey St., Fort Worth, Tex., archts. CD 4/15.

▲ **Wyo., Rawlins**—SCHOOL—BA 7/10—School District No. 3, Rawlins, new high school $1,126,000. Kellogg & Kellogg, 1909 Carey Ave., Cheyenne. archts. CD 6/10.

▲ **Tex., Fort Worth**—HOSPITAL—BA 7/15—St. Joseph's Hospital, c/o 1400 Main St., 5 story existing hospital addn. incl. 150 bed surgical facility addn. OB dpt., labs, $3,500,000. Plans deposit $50. Joseph R. Pelich, 1203 Trans American Life Bldg., Fort Worth, archt. CD 5/1/56.

## HEAVY CONSTRUCTION—LB & CA

**MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul. Bids opened 6/7.

Minn.—**W. Hodgman & Sons**, Fairmont, Minn., LB **$364,785** (11 bidders), grading, base and bit. base 9.5 mi. between Jct. TH No. 99 in Nicollet and TH No. 22 in New Sweden, Nicollet Co.;

Minn.—**Haagenson & Tranby**, McIntosh, Minn., LB **$108,586** (9 bidders), grading, base and plant mixed bit. surf. 0.09 mi. between Jct. of TH No. 169 and intersection of Main and Walnut Streets in Bell Plaine, Scott Co. CD 5/30.

† **Ashbach Constr. Co.**, 1910 West County Rd. C., St. Paul, Minn., CA **$146,571**, gravel surf. Forest Rd., 5.57 mi. long with 14 ft. roadway, in Superior National Forest, about 28 mi. N.W. of Tofte, being Kawishiwi Lake Forest Rd. No. 354 and Cook Lake Forest Rd., No. 353, MINNESOTA, Dpt. Agriculture, U. S. Forest Service, 623 North 2nd St., Milwaukee 3, Wis. Bids May 22. CD 5/15.

**Action Constr. Co.**, 1871 West Co. Rd. C, St. Paul, Minn., LB **$164,792** (8 bidders), treatment plant and lift station, PARK RAPIDS, MINN. Village, A. B. Cheney, clk., Park Rapids, Minn. Bids May 28. CD 5/3.

† **Ottinger Constr. Co.**, 6100 Camp Bowie Blvd., Fort Worth, Tex., LB **$161,141**, est. $177,555, relocation of State Hy. P. at Roaring River, 1.43 mi. of Hy. incl. conc. and steel bridge over Roaring River, Table Rock Reservoir, White River, CIVENG-03-050-57-43, MISSOURI. U. S. Eng., P.O. Box 867, Little Rock, Ark. Bids June 4. CD 5/23.

† **Ashbach Constr. Co.**, 1910 West Co. Rd. C., St. Paul, Minn., LB **$154,314**, (4 bidders), alterations and addns. to WATER SUPPLY and sanitary sewer sys. at Duluth Air Force Base, INv. NO. CIVENG-21-018-57-22, DULUTH, MINN., U. S. Eng., 1217 Post Office and Custom House, St. Paul, Minn., Bids June 5, CD 5/29.

J. **Brown Constr. Co.**, Mankato, Minn., LB **$76,505**, (8 bidders), gravel base, road-mixed bit. surf. and bit. seal coat, 3.2 mi. near Pennock and 4.9 mi. near Pennock, WILLMAR, MINN., Kandiyohi Co., A. H. Hoogeveeh, aud., Willmar, Minn., Bids June 5, CD 5/20.

**Roverud Constr. Co.**, Spring Grove, Minn., LB **$115,325**, (3 Bidders), crushed rock base and road-mixed bit. surf., 3/5 mi. near Planview, 2.4 mi. near Zumbro Falls and 4.6 mi. near Lake City, WABASHA, MINN., Wabasha Co., W. Loelmel, aud., Wabash, Minn., Bids June 4, CD 5/22.

**Woermann Constr. Co.**, 3800 West Pine Blvd., St. Louis 3, Mo., CA **$134,460**, general work, field house alterations and addns., and 1 story SERVICE BLDG., College Campus, CLAYTON, MO., Concordia Seminary, Bd. Dir., 801 DeMuh Ave., Clayton 5, Mo., Bids June 4, CD 5/28.

▲ Henry C. Beck Building, Shreveport, La.

▲ One of two luxury passenger liners being built for Moore-McCormack Lines, Inc. (Artist's conception)

▲ Kerr-McGee offshore drilling platform

▼ Ingalls-built Birtank loaded for shipment

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Federal Reserve Bank of Atlanta, Birmingham Branch ▼ (Artist's drawing)

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▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock, Ark.—**Forsgren Brothers,** 3023 N. 23, Fort Smith, Ark., CA **$199,993,** 6.727 mi. (incl. 308.00 ft. bridges and bridge length culverts) grading, minor drainage structures, crushed stone base course, single bit. surf. tr. and two rein.-con. slab span bridges and one bridge length culvert on St. Hy. 45, Sec. 3, Washington Co.; Ark.—**Freshour Corporation,** Sweet Home, Ark., CA **$239,326,** grading, minor drainage structures, crushed stone base, double bit. surf. treatment 8.018 mi. and two bridge length culverts Hickory Plains Jct., State Hy. 38, Sections 0 and 1, Prairie and Lonoke Counties; Ark.—**D. B. Hill,** 619 Parker, Little Rock, Ark., CA **$153,871,** grading, minor drainage structures 7.711 mi.; one rein.-con. bridge and two bridge length culverts on Paron-Jct. Hy. 70 Road, State Hy. 9, Sec. 5, Saline Co.; Ark.—**D. F. Jones Constr. Co., Inc.,** Rector Bldg., Little Rock, Ark., CA **$642,389,** grading, minor drainage structures, crushed stone base and shoulders, widening and resurf. with b. conc. hot mix base and surf. course concrete combination, curb and gutter 10.662 mi. incl. 44.75 ft. bridge extending 2 bridge length culverts near Clarksville, State Hy. 64, Sec. 5, Johnson Co. Bids June 5. Grand Total $1,235,579. CD 5/28.

† **Long Constr. Co.,** Rialto Bldg., Kansas City, Mo., CA **$618,028;** spillway chute, Big Sioux River, Sioux Falls, Bonus Co., Inv. 25-066-57-105, SOUTH DAKOTA. U. S. Eng., 17-9 Jackson St., Omaha, Nebr. Bids June 4. CD 6/10, under LB.

▲† **General Electric Co.,** Electric Bldg., Omaha, Neb., LB **$3,773,408,** generators, Units No. 4 and 5, Garrison Dam and Reservoir Proj., near Riverdale, 32-015-57-48, NORTH DAKOTA U. S. Eng., Riverdale, N. D. Bids June 4. CD 5/7.

**KANSAS**—State Hy. Comn., Masonic Temple, Topeka. Bids opened 6/6.

Kan.—**Swenson Constr. Co.,** 3305 Terrace St., Kansas City, Mo., LB **$126,018,** two 58 ft. x 79 ft. x 58 ft. rein.-con. girder, Br. No. 50-46-21.0, Sta. 696, plus 25, Proj. 50-46 I 02-3 (11) Pt. I, Johnson Co.; LB **$122,425,** 43 ft. x 47 ft. two 74 ft. x 43 ft. rein.-con. box girder, Br. No. 50-46-21.9, Sta. 744 plus 50.29, Proj. 50-46 I 02-3 (11) Pt. I, Johnson Co.; LB **$109,308,** 48 ft. two 80 ft. x 48 ft. rein.-con. box girder, Br. No. 50-46-23.2, Sta. 810 plus 60.92, Proj. 50-46 I 023-3 (11) Pt. I, Johnson Co.; LB **$79,396,** 38 ft. two 62 ft. x 38 ft. rein.-con. box girder, Br. No. 50-46-15.9, Sta. 428 plus 19.6, Proj. 50-46 I 02-3 (11) Pt. I, Johnson Co. CD 5/27, under Streets and Roads.

▲ **KANSAS**—State Hy Comn., Masonic Temple, Topeka. Bids opened 6/6.

Kan.—**Reno Construction Co.,** P.O. Box 61, Overland Park, Kan., LB **$185,019,** AB base course and b. conc. 4.12 mi. beginning at Anderson-Franklin Co. line; thence south on US 59, Proj. No. 59-2 F 067-2 (14);

Kan.—**G. W. Baker,** Holton, Kan., LB **$238,453,** pvt. patching, wid'n. and b. conc. 8.107 mi. beginning at north Jct. of US-36 and US-73 at Hiawatha; thence east on US-36, Proj. No. 36-7 K 1288 (2), Brown Co.; LB **$139,012,** b. conc. 11.762 mi. beginning at Pottawatomie-Shawnee County line; thence southeasterly on US-24, Proj. No. 24-89 K 1285 (2) Pts. I, II and III, Shawnee Co.;

Kan.—**Grosshans & Petersen, Inc.,** Marysville, Kan., LB **$1,033,999,** grading and surf. for detour 11.153 mi. beginning approx. ¼ mi. southwest of Jct. US-50 and K-150 near east edge of Olathe; thence northeasterly on US-50, Pts. II, III and IV, Proj. 50-46 I 02-3 (11), Johnson Co.;

Kan.—**Midwest Precote Co.,** 8600 East 17th, Kansas City, Mo., LB **$565,041,** grading with b. conc. surf. for detour 11.153 mi. beginning approx. ¼ mi. southwest of Jct. US-50 and K-150 near east edge of Olathe; thence northeasterly on US-50, Proj. 50-46 I 02-3 (11) Pts. I, II, III and IV, Johnson Co.;

Kan.—**Stannard Construction Co.,** 519 S. Broadway, Wichita, Kan., LB **$874,679,** c. conc. 7.149 mi. beginning at east city limits of Ogden; thence northeasterly on K-18, Proj. No. 18-81 F 082-1(6), Riley Co. CD 5/27.

**KANSAS**—State Hy. Comn., Masonic Temple, Topeka, Bids opened 6/4,

Kan.—**D. G. Hansen,** Logan, Kan., LB **$90,562,** Alt. No. 1, dense graded surf. course (road mix-Class C-1), 1.71 mi., Proj. No. 24-71 F 078-2 (4), Osborne Co.;

Kan.—**Sam-Ore Construction Co., Inc.,** McPherson, Kan., LB **$242,182,** Alt. No. 2, soil cement base course and dense graded surf. course (road mix-Class C-1), 9.011 mi. beginning at Smith-Jewell Co. Line; thence west on US-36. Proj. No. 36-92 F 092-2 (19), Smith Co.;

Kan.—**M. W. Watson,** Nat'l. Bank of Topeka Bldg., Topeka, Kan., LB **$289,400,** aggreg. asph. base course 10.138 mi. beginning at Graham-Sheridan County line; thence easterly on US-24, Proj. No. 24-33 F 078-1 (12), Graham Co.;

Kan.—**Rhoades Construction Co., Inc.,** Newton, Kan., LB **$245,983,** pavt. patching, widening and b. conc. 8.434 mi. beginning at east end of bridge over North Fork of Big Creek near Victoria; thence westerly on US-40. Proj. No. 40-26 K 3068 (2), Ellis Co. CD 5/17.

**DeWitt County Electric Co-operative,** Cuero, Tex., Owner builds. **$100,000;** extension RURAL DISTRIBUTION LINES, De Witt Co., TEXAS, CD 2/21/56.

**Patti Constr. Co.,** 1340 Admiral St., Kansas City, Mo., LB **$420,000,** est. $300,000-$400,000 (8 bidders), HIGH SCHOOL, OLATHE, KAN., M. Kenthigh, Supt. Schools, 113 Elm St., Olathe, Kan. Bids May 29. CD 9/28/56.

**Pittsburgh-Des Moines Steel Co.,** 1015 Tuttle St., Des Moines, Iowa, CA **$44,735;** installation of 960,000 gal. ground level steel water storage reservoir, RUSSELLVILLE, ARK. Russellville Water Co. Inc., (affiliate of General Waterworks Corp.), Russellville, Ark., Bids May 21, CD 11/27/51.

**Bob Hussey,** Box 299, Oklahoma City 1, Okla., CA **$122,000.** clearing the site of Atoka Reservoir, Atoka, OKLAHOMA CITY, OKLA. City, City Hall, Oklahoma City, Okla. Bids May 14. CD 6/10, under LB.

**Sonnier Ry. Constr. Co.,** 8802½ Liberty Rd., Houston, Tex., CA **$99,119;** addnl. facilities in Manchester Yards incl. grading, rr tracks, HOUSTON, TEX. Harris County-Houston Ship Channel Navigation Dist., 1519 Capitol St., Houston, Tex. Bids May 29. CD 4/29/54.

**Krist Hubert & Assocs.,** 5107 Jackwood St., Houston, Tex., Owner builds. **$75,000;** sanitary sewers. **$75,000;** open and closed drainage, Maplewood addn. HOUSTON, TEX. CD 5/23.

† **Gen.-Con., Inc.,** 400 Hereford Rd., Corpus Christi, Tex., LB **$73,746;** flood water retard. structures with earthfill embankments, SCS 87-TX-57, sites 1 and 10 on Calaveras Creek, Elmendorf, Bexar Co., TEXAS, Soil Conservation Service, 1st. National Bank Bldg., Temple, Bids May 31, CD 5/9.

† **Roland L. Scherer,** Weatherford, Tex., LB **$90,991;** flood water retard. structures with earthlll embankments, SCS 90TX57, sites 5 and 6, on Brady Creek, Brady, McCulloch Co., TEXAS. Soil Conservation Service, 1st. National Bank Bldg., Temple, Bids June 4, CD 5/21.

† **Arnett & Duncan,** Corsicana, Tex., LB **$52,859;** earthfill floodwaters retarding dam; Rowlett Creek of Trinity River. approx. 2 mi. south west of Wylie, Colling Co., site 7. Texas Soil Conservation Service Temple. Bids May 28. CD 5/8.

† **V & N Constr. Co.,** 302 37th St., Lubbock, Tex., CA **$260,666;** (on alt.) OFFICERS' QUARTERS, Dyess Air Force Base, ENG 41-443-57-23. ABILENE, TEX. U. S. Eng., Box 1600, Fort Worth, Bids Apr. 4, CD 4/11 under LB.

**Fox & Jacobs Constr. Co., Inc.,** 2714 McKinney St., Dallas, Tex., Owner builds. **$47,000;** water lines, fire plugs, Fair Homes, DALLAS, TEX.

**Fox & Jacobs Constr. Co., Inc.,** 2714 McKinney St., Dallas, Tex., Owner builds. **$75,000;** storm sewers, **$77,500;** sanitary sewers, **$77,500;** "Flair" Homes, DALLAS, TEX. CD 5/24.

† **City,** City Hall, Dallas, Tex. Purchase and Hire, **$125,000;** (emergency) reconstr. reworking drainage on various streets, DALLAS, TEX. CD 1/31/56.

**Fox & Jacobs Constr. Co., Inc.,** 2714 McKinney St., Dallas, Tex., Owner builds. **$80,000;** hard-paved streets etc., DALLAS, TEX.

**Greenwood Cemetery Assocs.,** c/o John T. Bailey, Pres., 3350 Whitesettlement Bd., Owner builds. **$100,000;** 1st unit concrete 100 x 100 ft. MAUSOLEUM in Greenwood, 3200 Whitesettlement Rd., FORT WORTH, TEX. CD 4/23.

**Krist Hubert & Assocs.,** 5107 Jackwood St., Houston, Tex., Owner builds. **$46,500;** water lines Maplewood addn. HOUSTON, TEX.

**Krist Hubert & Assocs.,** 5107 Jackwood St., Houston, Tex., Owner builds. **$75,000;** asphalt paved streets, etc., Maplewood Subdivision, HOUSTON, TEX.

**City,** City Hall, Killeen, Tex., Owner builds. **$120,000.** bridge reconstr. (emergency) KILLEEN, TEX. CD 5/9.

**Bexar County,** Commrs. Court, c/o Courthouse, San Antonio, Tex., Owner builds. **$80,000;** (emergency) road reconstr. reworking, drainage, imprvs., Prec. 2, $85,000 Prec. 4. San Antonio, Tex. CD 10/2/51.

**Foran Constr. Co.,** 2508 Tyler St., Amarillo, Tex., CA **$189,119;** water booster pumping facilities to water sys. PAMPA, TEX. City, City Hall, Pampa, Tex. Roberts, Merriman & Bowden, 2181½ N. Russell St., Pampa, engr. CD 7/6/56.

† **Kraling Construction,** Mahnomen, Minn., CA **$81,050.** clearing 1,520 acres of Glendo Reservoir, Missouri River Basin Proj., Oregon Trail Div. Spec. 700C-436, WYOMING Bureau Reclamation, Dpt. Interior, Glendo, Wyo. Bids May 2, awarded May 29. CD 4/11.

**Weaver Constr. Co.,** 5555 E. Evans St., Denver, Colo., LB **$210,538,** two grandstands at South High School, DENVER, COLO. School Dist. No. 1, 414 14 St., Denver, Colo. Bids May 27. Alfred J. Ryan, 1340 Glenarm Pl., Denver, engr.-archt. CD 12/8/55, under Public Buildings.

† **Modern Constr. Co.,** Box 1047, Santa Fe, N. M., LB **$243,297,** electronic laboratory, storage bldg., subsidiary bldg., Holloman Air Force Base, ENG-29-005-57-59, ALAMOGORDO, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids May 23. CD 4/29.

**Ward Constr. Co.,** 6836 San Pedro St., San Antonio, Tex., CA **$178,220;** (contr. 2) WIND TUNNEL, COLLEGE STATION, TEX. A&M College of Texas Research Foundation, College Station, Tex. Bids Apr. 18. CD 5/1, under LB.

† **Richie & Gallaway,** Box 7204, Hackberry St. Station, San Antonio, Tex., LB **$130,928** (base bid) reconstr. imprv. ELECTRIC SERVICE BLDG., Inv. 41-608-57-273, KELLY AIR FORCE BASE, TEX. Dir. Procurement & Prod., SAAMA, Bldg. No. 43, Kelly Air Force Base, San Antonio, Tex. Bids June 5. CD 9/19/52.

**City,** City Hall, Pearsall, Tex. Owner builds. **$47,500.** c.i. water lines, repairing, replacements, PEARSALL, TEX. CD 9/12.

**C. F. Braun Co.,** 1000 S. Fremont Ave., Los Angeles, Calif., CA **$675,000;** Eight, 100-hp compressor station, Shamrock (17¼ mi. west) Gray Co., TEXAS El Paso Natural Gas Co., c/o El Paso Natural Gas Co. Bldg., El Paso, Tex., CD 12/31.

▲† **T. L. James & W. R. Aldrich,** Box 147, Alexandria, La., CA **$12,307,716;** RUNWAY, taxiways, aprons, Amarillo Air Force Base, ENG 34-066-57-53. AMARILLO, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids May 22, awarded June 8. CD 6/5, under LB.

## BUILDINGS—LB & CA

**D'Arcy Leck Constr. Co.,** 2838 Stevens Ave., Minneapolis, Minn., LB **$735,986,** general contract, (6 bidders), Comstock HALL ADDN., (women's dormitory), Minneapolis Campus, MINNEAPOLIS, MINN., Regents of the University of Minnesota, 404 Administration bldg., Minneapolis 14, Minn. Bids June 6. CD 5/23.

▲ **Swedberg Constr. Co.,** Detroit Lakes, Minn., LB **$1,044,900,** (7 bidders), general contract, 4 story and basement, St. Ansgar HOSPITAL, MOORHEAD, MINN., Franciscan Sisters of the Immaculate Conception, Little Falls, Minn., Bids June 7. CD 5/16.
**Valley Service Inc.,** Moorehead, Minn., LB **$374,418,** (2 bidders), mechanical, plumbing, heating and ventilating, work for St. Ansgar Hospital, (Moorehead, Minn.).

**J. W. Larson,** Bismarck, N. D., CA **$729,190,** 3 story women's DORMITORY at Moorhead State College, MOORHEAD, MINN., State Teachers College Bd., 41 Sherburne Ave., St. Paul, Minn. Bids June 24. CD 2/1.

▲ **Sebco, Inc.,** 127 Bryant Ave. North, Minneapolis, Minn., CA **$1,000,000,** 15 or 20 store Southdale Square SHOPPING CENTER, 66th St. and Xerxes Ave., S., RICHFIELD, MINN. Southdale Realty Co., B. B. Dayton, pres., 3500 West 66th St., Richfield, Minn.

▲ **Blaw-Knox Co.,** People's Gas Co., Bldg., Chicago 3, Ill., CA **$1,100,000,** general contract, liquid carbonic dioxide and dry ice PLANT, PINE BEND, (P. O. South St. Paul), MINN., Liquid Carbonic Corp., 3100 S. Kedzie St., Chicago, Ill. and 1755 Thomas Ave., St. Paul, Minn. CD 2/13.

▲ **McGough Constr. Co.,** 1172 Selby Ave. St. Paul, Minn., CA **$1,175,000,** (8 bidders), Archbishop Murray Memorial high SCHOOL, Larpenteur Ave. & Hy. 100, ST. PAUL, MINN. Sisters of the Order of St. Benedict, St. Paul's Priory, 301 Summit Ave., St. Paul, Minn., Bids June 6. CD 5/31.

**Wahl Constr. Co.,** St. Cloud, Minn., LB **$430,051,** (2 bidders), 2 story laboratory and SCHOOL bldg., State College, ST. CLOUD, MINN., State, Dept. of Administration, P. T. Peterson, dir. of purchs., 19 State Capitol, St. Paul, Minn. Bids June 6. CD 5/17.

**Westinghouse Electric Corp.,** 262 Merchandise Mart, Chicago 54, Ill., CA Est. **$950,000.** furnishing 22,000 kw steam turbine-generator for POWER PLANT, IOWA, Eastern Iowa Light & Power Co-operative, F. E. Fair, gen. mgr., E. 5 and Sycamore Sts., Wilton Junction, Iowa. Awarded June 3. CD 3/21.

▲ **Weeks Constr. Co. Inc.,** 1814 Harrison St., Kansas City, Mo., LB **$2,796,878,** est. $1,600,000, OFFICE AND PUBLISHING PLANT for national headquarters, of Nazarene Church, KANSAS City, MO., Nazarene Publishing House, 6401 Paseo St., Kansas City, Mo., Bids May 15. CD 5/14.

**Schneider Bros. Constr. Co.,** 421 W. Missouri St., Kirksville, Mo., LB **$962,706,** est. $675,000, (6 bids) 2 story health and physical EDUCATION BLDG., (Field House) KIRKSVILLE, MO., Northeast Missouri State Teachers College, Bd. of Regents, Baldwin Hall, Kirksville, Mo. Bids June 4. CD 5/27.

**L. J. Cangen Constr. Co.,** Box 6215, Kansas City 26, Mo., LB **$414,183,** SCHOOL addn., incl. industrial arts, music room and gym addns., LIBERTY, MO. School Dist., West Franklin St., Liberty, Mo. Bids May 22, CD 5/9.

▲† **MacDonald Constr. Co.,** 1310 S. Grand Blvd., St. Louis 4, Mo., LB **$2,808,000,** (5 bidders), general contract, conversion of approx. 600,000 sw. ft. warehouse space into OFFICE SPACE, incl. heating and electrical sys., 8 passenger elevators, removal of existing elevators, etc., St. Louis Area, Support Center, 12th and Spruce Sts., ENG-23-028-57-67, ST. LOUIS, MO., U. S. Eng., 1800 Federal Bldg., Kansas City, Mo., Bids June 7. CD 5/29.

**Westlake Constr. Co.,** 1919 Railway Exchange Bldg., 611 Olive St., St. Louis 1, MO., CA Est. **$820,000,** 3 story part bsmt., 52x235 ft., 52x80 ft. brick, steel HOTEL, 4635 Lindell Blvd., (Bel-Air Hotel), St. LOUIS, MO., Boulevard Investment Co., Norman K. Probstein, pres., 408 Olive St., St. Louis 1, Mo. CD 2/18.

**Carson-Mitchell Constr. Co.,** 601 N. Glenstone St., Springfield, Mo., CA **$565,000,** 2 story and bsmnt., 98x102 ft. CARPORT, SPRINGFIELD, MO., Southwest Bell Telephone Co., 1010 Prine St., St. Louis, Mo. Neville, Sharp, Simon, 25 E. 12th St., Kansas City, Mo., archts. Bids May 23.

**Carson E. Hickox,** 1705 Randel Rd., Oklahoma City, Okla. Owner Builds. **$600,000.** 3 story APARTMENT HOUSE, NW 56th St. and Pennsylvania. OKLAHOMA CITY, OKLA. Rex Whiting, 2921 Clarkson St., Oklahoma City, archt.

**Vernon & James Smith Co.,** 2151 Fort Worth Ave., Dallas, Tex., Owner builds. **$383,150;** 17 DWELLINGS; **$378,500;** 13 DWELLINGS, Singing Hills, DALLAS, TEX. CD 5/16.

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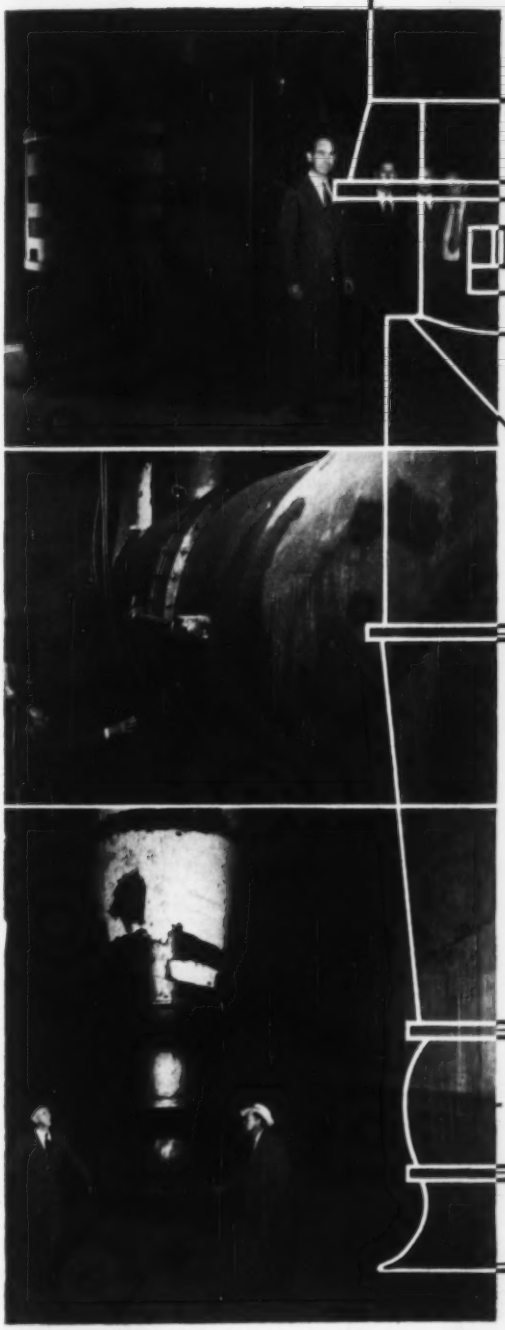

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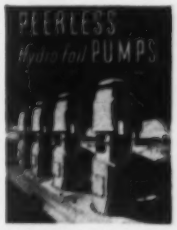


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† **C. A. Logeman Co.**, 1037 Morales St., San Antonio, Tex., CA **$662,645**, reconditioning EM BARRACKS, FORT SAM HOUSTON, TEX. U. S. Govt., c/o Purch. and Contg. Office Bldg., 371, Fort Sam Houston, San Antonio, Tex. Bids June 4. CD 6/13, under LB.

▲ **Thomas S. Byrne, Inc.**, Fort Worth National Bldg., Fort Worth, Tex., LB **$1,527,500**, 3 story, brick, tile, concrete and steel HOSPITAL, FORT WORTH, TEX. All Saints Hospital, c/o Ray Homes, chrm., Bl. Comm., 1525 W. Magnolia St., Fort Worth, Tex. Bids June 12. CD 5/16.

† **Burnett Constr. Co.**, Box 336, Corpus Christi, Tex., CA **$807,660**; EM MESS BLDG., Naval Air Station, NBy 11352, KINGSVILLE, TEX. Officer in Charge Constr., Administration Bldg. No. 1, Naval Air Station, Corpus Christi, Tex., Bids May 23. CD 6/6, under LB.

▲ **V. Prassel Constr. Co.**, Box 526 and **D. G. Janssen**, 310 Insurance Bldg., San Antonio 6, Tex., LB **$1,947,000** (jointly) est. $2,000,000, 200 housing units, non-dwelling facilities, Proj. Tx-11-2, LAREDO, TEX. Laredo Housing Authority, 2000 San Francisco Ave., Laredo, Tex. Bids June 5. CD 5/28.

**Engineering Design & Constr. Inc.**, c/o Bob Patton, 306 Perry-Brooks Bldg., Austin, Tex., CA **$150,000**; AUTO DEALERSHIP, shop, storage, display, AUSTIN, TEX. Owner, c/o 306 Perry-Brooks Bldg., Austin, Tex., CD 6/11.

**O. J. Beck & Sons**, 340 Westchester Dr., Corpus Christi, Tex., LB **$417,730**; (base bid) 2nd JUNIOR HIGH ADDN. and elementary school, CORPUS CHRISTI, TEX. Sundeen Independent School Dist., Armstrong Bldg., 1602 Airline St., Corpus Christi, Tex. Lynn A. Evans and O. Roy Abbott, Beverly Bldg., Corpus Christi, archts. Bids June 6.

**Farnsworth & Chambers Co., Inc.**, Box 74, Houston, Tex., Owners Builds **$300,000**; RESEARCH LABORATORY and pilot plant, HOUSTON, TEX. CD 6/10.

**Spaw-Glass, Inc.**, 2411 Times Blvd., Houston, Tex., LB **$356,814**; (base bid) est. $550,000; Clinton ELEMENTARY SCHOOL for negroes, HOUSTON, TEX. Houston Independent School Dist., 1300 Capitol St., Houston, Tex. Bids June 4. CD 4/16.

**Candoo Constr. Co.**, Box 14226, Houston, Tex., CA **$385,000**; (on alt. 2) est. $350,000-$700,000; YOUTH ACTIVITIES Bldg., HOUSTON, TEX. St. Paul's Methodist Church, 5501 Main St., Houston, Tex. Bids May 14. CD 5/10.

**Walsh & Burney**, Box 5176, San Antonio, Tex., LB **$131,295**; (base bid) SERVICE BLDG. Alterations and addns., SAN ANTONIO, TEX. City P. Service Bd., City Hall, Navarro & Villita Sts., San Antonio, Tex. Phelps & DeWees & Simmons, Box 8127, San Antonio, archts. W. E. Simpson Co., 945 Milam Bldg. and G. M. Baker, Box 8127, Laurel Heights Station, all San Antonio, Tex., engrs.

**E. Denson Constr. Co.**, Box 448, Tyler, Tex., LB **$455,179**; (base bid unit 1) est. $650,000; SHOPPING CENTER, TYLER, TEX. A. E. Dennis, and W. E. Curtis, People's Bank Bldg., Tyler, Tex. Bids May 29. CD 4/11.

# FAR WEST

## HEAVY CONSTRUCTION—LB & CA

▲† **Bureau of Indian Affairs**, Dpt. Interior, Portland Area Office, P. O. Box 4097, Portland, Ore., rejected bids May 31, intake structure and discharge line in Michaud Irrigation Proj., Portneuf Pumphouse, Inv. 110-57-531, Fort Hall, IDAHO, LB **$1,878,924**. CD 6/7, under LB.

**IDAHO**—State Hy. Dpt., Boise,
**Kiely Constr. Co.**, East of Butte, Mont., LB **$609,010**, roadway and bit. surf. 4.757 mi. U. S. 2, Bonner Co. Bids June 4. CD 5/21.

† **Olson Electric Co.**, 1109 Washington St., Vancouver, Wash., LB **$116,872**; est. $134,304; taxiway lighting facilities, Mountain Home Air Force Base, ENG 45-164-57-45. MOUNTAIN HOME, IDAHO. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 6. CD 5/15.

† **J. A. Tiberti Constr. Co.**, 1414 Industrial Rd., Las Vegas, Nev., LB **$312,000** (3 bidders) existing operations bldg. addn., recreation bldg., Nellis Air Force Base, ENG 57-140, LAS VEGAS, NEV. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. CD 7/5/55.

† **Smith Bros. Inc.**, 3807 Fourth Plain Rd., Vancouver, Wash., LB **$192,960**, est. $276,060 (4 bidders), 1,820 ft. rock breakwater, Inv. 57-73, Nahcotta, WASHINGTON U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., Bids June 6. CD 5/15.

**Ace Constr. Co.**, 7516 Roosevelt Way, Seattle 15, Wash., LB **$287,672** (3 bidders), 15,000 ft., 18- and 24-in. steel supply main, KENT, WASH., City, City Hall, Kent Wash. Bids June 3. CD 5/27.

**The Ballard Co.**, 1537 Ballard Way, Seattle, Wash., LB **$73,930** (12 bidders), 17,940 ft., 8- to 12-in. sanitary sewers, OAK HARBOR, WASH., Town, Town Hall, Oak Harbor, Wash. Hill & Ingman, 1728 E. Madison St., Seattle, engrs. Bids June 4.

**West Coast Constr. Co. Inc.**, 835 W. 48 St., Seattle, Wash., LB **$279,925** (7 bidders), 11,285 ft. 8- to 30-in. rein.-conc. trunk sewers, SEATTLE, WASH., Lake City Sewer Distr., 3206 E. 125 St., Seattle 55, Wash. Bids June 6. CD 5/2.

† **United Paving Co., Inc.**, Geiger Field Quarry, Spokane, Wash., LB **$120,050**, est. $84,685 (2 bidders), asphalt, conc. and asph. cement paving and surf. three access roads in Fairchild AFB defense area, ENG-45-108-57-142, SPOKANE, WASH., U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 5, CD 5/15.

▲† **General Constr. Co.**, 3840 Iowa St., Seattle, Wash., CA **$1,142,300**, rockfill breakwater for small boat basin, CIVENG-45-108-57-70, Bellingham, WASHINGTON, U. S. Eng. 4735 E. Marginal Way, Seattle 4, Wash. Bids May 21. CD 5/24, under LB.

**McKay & Carlin**, Aberdeen, Wash., LB **$513,579**, (9 bidders), 28-in. steel pipeline, 6½ mi. long, ABERDEEN, WASH., City, City Hall, Aberdeen, Wash. Bids June 5, CD 5/24.

**Hart Constr. Co.**, 3536 E. 11th St., Tacoma, Wash., LB **$324,613** (3 bidders), bay front parking facilities, boathouse addn. and other imprvs. for main beach center at Point Defiance Park, TACOMA, WASH., Metropolitan Park Bd. City Hall, Tacoma, Wash. Stewart & Lamberger, 3670 W. Soundview Dr., Tacoma, consult. engrs. Bids June 5. CD 5/29.

**S. & S. Surf. Co.**, 8329 15th Ave. N. W., Seattle, Wash., CA **$195,723** (4 bidders), bit. cement surf. on 56 mi. and seal coating 26 mi. county roads, YAKIMA, WASH. Yakima Co., County Court House, Yakima, Wash. H. R. Sweet, County engr. CD 6/7.

**OREGON**—State Hy. Comn., Hy. Bldg., Salem, bids opened June 6,
**Coos Bay Dredging Co.**, Box 217, Coos Bay, Ore., LB **$189,342**; (7 bidders) 752 ft. overcrossing of S. P. RR on North Bank Rd., Proj. No. FAP S-330 (1). Coos Co. CD 5/29.

**Anderson-Burke Corp.**, 2114 Thorndyke St., Seattle, Wash., CA **$312,600**, electrical contract, at Pelton Dam and powerhouse on Deschutes River OREGON Portland General Electric Co., 621 S.W. Alder St., Portland, Ore. CD 8/31/51.

† **G. A. Grant**, Kennewick, Wash., LB **$115,963**, est. $105,969 supplementary spawning channel at McNary Dam, Inv/57-84, OREGON U. S. Eng., City-County Airport, Walla Walla, Wash. Bids June 5. CD 6/6, under LB.

† **Coos Bay Dredging Co.**, Box 217, Coos Bay, Ore., LB **$125,736** (5 bidders) modifying levee system, catching inlet drainage distr., Coos River, Civeng 35-026-57-217, OREGON. U. S. Eng., Pittock Block, Portland 5, Ore. Bids May 7. CD 5/22.

† **C. J. Eldon**, Box 5686, Portland, Ore., LB **$103,544** (11 bidders) bridge on relocated Rigdon Rd., Hills Creek Reservoir, Civeng 35-026-57-238, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids June 6. CD 5/16.

**Riverside Constr. Co.**, 12441 S.E. Market St., Portland, Ore., LB **$105,455** (6 bidders) 10,770 lin. ft. water system, MILWAUKIE, ORE. Witchita Water Dist., 6108 S.E. Monroe St., Milwaukie, Ore. Bids June 3.

**A. R. Boden Hamer**, 1365 Glen Dr., San Leandro, Calif., LB **$147,567**; (9 bidders) channel clearing and barbed wire fencing, Alvarado, OAKLAND, CALIF. Alameda County Flood Control and Water Conservation Dist., Court House, Oakland, Calif. CD 10/22/53.

▲† **Donald M. Drake Co.**, 1600 N.W. Savier St., Portland, Ore., LB **$1,111,250** (6 bidders) stripping and excavating abutments for Dougar Dam and clearing portion of reservoir area at Cougar Reservoir, Civeng 35-026-57-234, OREGON U. S. Eng., Pittock Block, Portland, Ore. Bids June 4. CD 5/8.

▲† **Ross B. Hammond Co.**, 1241 N. Williams Ave., Portland, Ore., CA Est. over **$5,000,000**. SAGE operation center at Camp Adair, Corvallis for the Dpt. of the Air Force, OREGON Western Electric Co., 195 Broadway, New York, N. Y.

▲ **OREGON**—State Hy. Comn. Hy. Bldg., Salem, Bids opened 6/6,
Ore.—**Babler Bros.**, 4617 S.E. Milwaukee, Portland, Ore. and **Rogers Constr. Co.**, 11760 N.E. Glisan, Portland, Ore. LB **$84,210**, (6 bidders), shoulder shaping and oiling 8.49 mi. Oregon Coast Hy., Lincoln Co.
Ore.—**Barney Helsen**, 14000 S. W. Far Vista, Beaverton, Ore., LB **$119,758**, (4 bidders), oiling 12.16 mi. Willow Creek Rd. FAP S-318(1), Morrow Co.
Ore.—**Rogers Construction Co.**, 11760 N. E. Glisan St., Portland, Ore., LB **$422,060**, (7 bidders), grading and paving 5.88 mi. Sherman Hy. FAP F-152(5) and F-90 (3), Sherman Co.
Ore.—**Chicago Fence & Equipment Co.**, 4400 W. Addison, Chicago, Ill., LB **$85,082**, (4 bidders), 19,800 lin. ft. metal median barrier Portland-Salem Freeway. FIP I-303(18), Clackamas and Multnomah Counties.
Ore.—**Vernie Jarl**, 438 S. Roberts Ave., Gresham, Ore., LB **$579,969**, (12 bidders), grading and oiling 4.64 mi. John Day Hy. FAP F-4(3), Wheeler Co. CD 5/29.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,
Calif.—**Peter Kiewit Sons Co.**, 345 Kieways Ave., Arcadia, Calif., CA **$3,961,230**; grading, paving 4.1 mi. and constr. 5 bridges for 4 lane freeway on San Diego Freeway between 2.2 mi. south of Sign Rte. 74 and Trabuco Creek VII Ora 2A, Orange Co., bids May 31, awarded June 10. CD 6/6, under LB.

▲ **CALIFORNIA**—State Dpt. P. Wks., 1120 N. St., Sacramento,
Calif.—**J. E. Haddock, Ltd. and R. M. Price Co.**, 3558 East Foothill Blvd., Pasadena, Calif., CA **$2,161,776**; grading and surf. 1.7 mi. Santa Ana Freeway, constr. 3 bridges, traffic signal illuminated signs and hy. lighting in cities of Buena Park Fullerton and Anaheim, between 10 St. in Buena Park and La Palma Ave. in Anaheim, Orange Co. Bids May 23, awarded June 10. CD 6/3, under LB.

**CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, bids opened June 6
**Calif.—Eric L. Peterson**, 2315 Curry St., Long Beach, Calif., LB **$723,562**; (13 bidders) 3.7 mi. graded and surf. in Pomona between 5th Ave. Rte 19 and 0.9 mi. south of Riverside Dr., VII, LA, SBd, 77B Pom. A., Los Angeles and San Bernardino Counties, CD 5/13.

**CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, Bids opened 6/5,
Calif.—**O. C. Jones and Sons**, 1520 4th St., Berkeley, Calif., LB **$128,837** (5 bidders), grading, surf. 1.1 mi. and rein. con. slab bridge between 1.4 mi. south of Muir Beach and 7.9 mi. south of Olema. IV Mrn 56-A. B Marin Co.
Calif.—**Grnite Constr. Co.**, P. O. Box 900, Watsonville, Calif. LB **$672,566**, (3 bidders), 2.9 mi. graded and surf. between 0.2 mi. east of Swift St. in Santa Cruz and 0.5 mi. west of Wilder Creek. IV SCR 56, SCR B, Santa Cruz Co.
Calif.—**Thomas Constr. Co.**, 4665 E. Hedges Ave., Fresno, Calif., LB **$188,881** (5 bidders), surf. about 1.1 mi. Hy. 99 between Kenyon Drive and Redding underpass, incl. 2 bridges. II Sha-3 A, Shasta Co.
Calif.—**Chilotti Bros. Inc.**, 629 Francisco Blvd., San Rafael, Calif., LB **$429,587** (8 bidders), about 2.3 mi. graded and surf. on Sign Rte. 12 and traffic sys. modified in Santa Rosa between Rte. 1 and 0.2 mi. east of Farmers Lane, IV-Son-51 S. Ro, Sonoma Co.
Calif.—**Peter Kiewit Sons Co.**, 442 Post St., San Francisco, Calif., LB **$530,232** (7 bidders), about 1.1 mi. graded and surf. on Sign Rte 12, incl. rein.-con. bridge between 0.4 mi. south of Gualala River and Gualala. I son-Men-56, E A, Sonoma and Mendocino Counties.
Calif.—**Frederickson & Watson Constr. Co.**, 873-81st Ave., Oakland, Calif., LB **$77,307** (8 bidders), surf. about 4.3 mi. on Live Oak, Red Bank and Reeds Creek Roads. II Tehs 1083, Tehama Co. CD 5/13.

▲† **Cox Bros. Constr. Co., J. E. Haddock Ltd., Arundel Corp.** and **L. E. Dixon Co.**, Box C Stanton Station, San Diego, Calif., LB **$6,373,000**; (5 bidders) (joint venture) site preparation, for RUNWAY AND EXISTING PAVEMENT REPAIR, Naval Air Facility, Spec. 5499-56. San Clemente Island, SAN DIEGO, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif., bids June 6. CD 5/13.

**Milosevich & Zarubica Constr. Co.**, 1419 Potrero Ave., El Monte, Calif., CA **$537,960**; Reseda Blvd. Storm Drain, Bond Issue Proj. No. 96, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif., bids May 24, awarded June 4, CD 6/4, under LB.

† **Schmid & Wiswell, Maino Constr. Co.**, 2238 S. Broad St., San Luis Obispo, Calif., LB **$564,437**; (5 bidders) addnl. AVIATION FACILITIES, San Nicholas Island, Spec. 9963-56, POINT MUGU, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif., bids June 4, CD 10/22/54.

▲† **The Hawaiian Dredging and The J. H. Pomeroy Co., Inc., and Kosterk & Wyth**, P. O. Box 3468, Honolulu, T. H., LB **$1,635,000** (3 bidders) hangars, Naval Air Station, NBy 3344, MARIANAS ISLAND, GUAM Bureau Yards & Docks, c/o Res. Officer in Charge of Constr., 333 Fell St., San Francisco, Calif. Bids June 7. CD 4/30.

▲† **Diversified Builders Inc.**, 1616 S. Inglewood Ave., Montebello, Calif., LB **$1,669,800**; (8 bidders) constr. guided MISSILE SUPPORT FACILITY, Naval Ammunition and net Depot, Spec. 7406-56, SEAL BEACH, CALIF. Eleventh Naval Dist., P. Wks. Office, 937 Harbor Dr., San Diego, Calif., bids June 7, CD 5/29.

▲ **North Bay Constr. Co. and Rapp, Christensen & Foster**, 560 Boyd St., Santa Rosa, Calif., CA **$1,649,450**; (joint venture) sewage treatment plant and appurtenance facilities, VALLEJO, CALIF. Vallejo Sanitation and Flood Control Dist., 450 Rider St., Vallejo, Calif. CD 5/21, under LB.

**K. E. C. Co.**, 22018 S. Norwalk Blvd., Artesia, Calif., LB **$73,861**; (4 bidders) site development and ground imprvs. incl. sprinkling sys. for classroom bldgs. education bldg. at San Diego State College. SAN DIEGO, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif., bids June 5. CD 5/22.

**Osborn Constr. Co.**, P. O. Box 1034, Redding, Calif., LB **$119,980**; (5 bidders) sewage treatment plant and outfall sewers, WEAVERVILLE, CALIF. Weaverville Sanitary Dist., Courthouse, Weaverville, McCandless & Jett, Box 845, Menlo Park, Calif., engrs., CD 4/15.

**Oscar C. Holmes & Thomas Bros.**, 927 Arguello St., Redwood City, Calif., LB **$1,267,925**; (4 bidders) constr. and reconstr. various city streets, bridges, culverts, etc. WALNUT CREEK, CALIF. City, c/o Clerk, City Hall, Walnut Creek, Calif., CD 8/13.

## BUILDINGS—LB & CA

▲ **Ace S. Raymond**, Logan, Utah, CA **$1,099,000**. 5 story wing and heating plant at L.D.S. HOSPITAL, LOGAN, UTAH. Latter Day Saints Church, Temple Sq., Salt Lake City, Utah. Bids May 16. CD 5/20.

▲ **Campion Co.**, 5400 S. 2100 W. Roy St., Ogden, Utah, LB **$1,396,736**; MOUNT ODGEN JUNIOR HIGH SCHOOL, OGDEN, UTAH: Ogden City School Bd., 2351 Grant Ave., Ogden, Utah, bids June 11, CD 5/22.

▲ **Tolboe & Harlin Constr. Co.**, 3091 Main St., Salt Lake City, Utah, LB Est. **$2,000,000**. 5 story BANK, SALT LAKE CITY, UTAH. Federal Reserve Bank of San Francisco, Sansome and Sacramento Sts., San Francisco, Calif. Bids June 4. CD 5/17.

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▲ **John Branagh & Son**, 42 LaSalle Ave., Piedmont, Calif. LB $1,891,432; (6 bidders) 4 story, 112,000 sq. ft. rein. con. SOCIAL SCIENCE AND ARTS BLDG., Campus, BERKELEY, CALIF. University of California, Administration Bldg., Berkeley, Calif., Gardner A. Daily, 442 Post St., San Francisco, Calif., archt. CD 4/25/56.

**J. B. Sooy Constr. Co.**, 508 S. 1st. St., Redlands, Calif., LB $506,000; (7 bidders) NORCO JUNIOR HIGH SCHOOL, CORONA, CALIF. Corona Unified School Dist., 900 Howard St., Corona, Calif., bids June 3, CD 5/16.

▲ **James I. Barnes Constr. Co.**, 1940 Spring St., Redwood City, Calif., LB $4,720,000; (3 bidders) 6 story and ground floor, type I constr. rein. con. HOSPITAL, Cedar Ave. near Huntington, FRESNO, CALIF. Fresno County General Hospital, c/o Bd. Suprvs., County Clerk, Courthouse, Fresno, Calif., bids June 11, CD 5/31.

▲ **Midstate Constr. Co.**, 347 Clay St., San Francisco, Calif., CA $821,000; Base bid No. 1, HIGH SCHOOL, MILL VALLEY, CALIF. Tamlpais Union High School, Larkspur-Corte Madera Vicinity, Mill Valley, Calif. Bids May 29. CD 6/6, under LB.

**Henderson Constr. Co.**, 33 Rich St., San Francisco, Calif., CA $798,855; Base bid No. 2 school (MILL VALLEY, CALIF.)

▲ **Craft Constr. Co.**, 2812 Sanguinette Lane, Stockton, Calif., CA $1,303,160; 3 story wood frame brick veneer WOMENS DORMITORY, STOCKTON, CALIF. College of the Pacific, N. Pacific Ave., Stockton, Calif. Bids May 15. CD 5/21, under LB.

▲ **Cahill Bros.**, 350 Sansome St., San Francisco, Calif., CA about $5,000,000; 10 story HEADQUARTERS BLDG., SAN FRANCISCO, CALIF. Hancock Mutual Life Insurance Co., Raymond Deston General Agency, Russ Bldg., San Francisco, Calif.

† **Inland Empire Builders & Sungold Inc.**, 3631 10th St., P. O. Box 2087, Riverside, Calif., LB $625,000; (3 bidders) site imprvs., 500 unit armed services housing project, (grading, street paving, curbs and gutters, etc.) TRAVIS AIR FORCE BASE, CALF. Base Contg. Officer, 5th Air Base Group, Travis Air Force Base, Calif.

# CANADA

## HEAVY CONSTRUCTION—BA

▲ **Ont., Toronto**—BA 6/24—Municipality of Metropolitan Toronto, 67 Adelaide St. E., open cut and tunnel of 42-in. concrete sewer extending from Danforth Park sewage treatment plant southerly and easterly following line of Massey Creek to Pharmacy Ave. sewage treatment plant, approx. 8,050 ft. over $1,000,000. Plans deposit $50. CD 1/5/55.

**Que., Clarke City**—BA 6/26—Dpt. P. Wks., Hunter Bldg., Ottawa, dredging and wharf repairs, Clarke City, $60,000.

▲ **Que., Montreal**—BA 7/10—City, City Hall, second section of Decarie-Raimbault Collector Sewer between Dudemaine St. and point south of Henri Bourassa Blvd. over $1,000,000. Plans deposit $200.

## HEAVY CONSTRUCTION—LB & CA

**ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto,

**Ont.—Rayner Constr. Ltd.**, 29 Commercial Rd., Leaside, Toronto, Ont., LB $269,985 (5 bidders) Contr. 57-64, gran. base, hot mix paving, 15.25 mi. Hy. 120 Atikokan;

**Ont.—Dibblee Constr. Co. Ltd.**, 384 Bank St., Ottawa, Ont. LB $355,777 (8 bidders) Contr. 57-58, hot mix paving gran. base 8.3 mi. Hy. No. 11, New Liskeard, Bids June 5. CD 5/22.

**John Patterson Constr. Co. Ltd.**, 23 Church St. W., Brampton, Ont., CA $147,603, 123 ft. rein.-con. bridge, abutments, approaches and roadways on Steele's Ave. at Woodland Park, GORMLEY, ONT. Markham Twp., R.R. No. 2, Gormley, Ont. Babcock, Scrivener Ltd., 119 Isabella St., Toronto, engr.

**A. Cope & Sons Ltd.**, 275 Campbell St., Sarnia, Ont., CA $74,137, asphalt paving and resurf. of city streets, SARNIA, ONT., City, City Hall, Sarnia, Ont. Awarded June 6. CD 5/23.

**Dufferin Constr. Co. Ltd.**, 2700 Dufferin St., Toronto, Ont., LB $194,906 pavement resurf. on various streets TORONTO, ONT. City, City Hall, Toronto, Ont. CD 3/23/55.

**George Wimpey & Co. Ltd.**, 80 North Queen St., Islington, Ont., CA est. $100,000, about 8,200 lin. ft. watermains and appurtenances; about 9,698 lin. ft. sanitary sewers, storm sewers and appurtenances in Whitby Acres and Northern Heights subdivisions, WHITBY, ONT. L. J. Walton Ltd., and D. T. Donovan Ltd., both 719 Bayview Ave., Toronto, Ont. CD 4/11.

**H. M. McFarland Constr. Co. Ltd.**, Talbot St., Picton, Ont., CA $199,915. pavement and curb, St. Laurent Blvd. from Montreal Rd. to Hemlock Rd., OTTAWA, ONT. City, City Hall, Ottawa, Ont. Awarded June 3. CD 3/15/51.

**Brennan Paving Co. Ltd.**, 400 Gage St. N., Hamilton, Ont., CA $98,797, 15,000 ft. curbs and gutters, 26,000 sq. yds. asphalt paving, 17,000 sq. ft. asph. resurf. and 43 catch basins, STRATFORD, ONT. City, City Hall, Stratford, Ont. Awarded June 4. CD 9/26/55.

**Lewis Bros. Asphalt Paving Ltd.**, 131 Bates Rd., Montreal, Que., LB $479,965, 6,000x200 ft. runway, connecting taxiway, aircraft parking area, drainage installations at airport, RIVIERE DULOUP, QUE. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids May 31. CD 5/20.

**Pressure Pipe Co. of Canada Ltd.**, 6905 Clanranald Ave., Montreal, Que., CA $955,422, supplying concrete pressure pipe, Contr. 60 MONTREAL, QUE. City, City Hall, Montreal, Que. Awarded June 6. CD 5/23, under LB.

▲ **Tracy Constr. Inc.**, Ville de Tracey, Que., CA $1,545,890 wharf reconstr., PASPEBIAC, QUE. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Apr. 3, awarded May 31. CD 4/11, under LB.

**Verona Constr. Ltd.**, 1290 St. Denis St., Montreal, Que., CA $67,000, 4,250 ft. of 20 in. watermains to supply town of Mackayville, VILLA JACQUES CARTIER, QUE., City, City Hall, Jacques Cartier, Que., Lalonde, Girouard & Letendre, 7379 St. Hubert St., Montreal, Que., consult. engrs., awarded June 5.

## BUILDINGS—LB & CA

▲ **Argo Constr. Ltd.**, 18 Gladstone Ave., Montreal, Que., CA $1,978,000. POST OFFICE, ST. JOHN'S NEWFOUNDLAND. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Mar. 6, awarded June 7. CD 3/27, under LB.

▲ **Redfern Constr. Co. Ltd.**, 36 Toronto St., Toronto, Ont., CA $10,943,700 (6 bidders) 14 story with 300 ft. frontage OFFICE bldg., Adelaide St. E. and Victoria St., TORONTO, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids May 1, awarded May 31. CD 5/15, under LB.

**Range Road Developments Ltd.**, 11 King St. W., Toronto, Ont., Owner Builds, $3,000,000. three 10 story, 304-suite APARTMENT buildings, Range Rd., OTTAWA, ONT. Page & Steele, 72 St. Clair Ave. W., Toronto, archts. M. S. Yolles & Assocs., 2510 Yonge St., Toronto, engrs.

**Westminister Homes Inc.**, 5621 Westminister Ave., Montreal, Que., Owner Builds, $850,000. 45-bungalow HOUSING Program, McMurray and Leger Sts., MONTREAL, QUE. Ben-Ami Shulman, 5174 Cote des Neiges Rd., Montreal, archt.

**Foundation Co. of Canada Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., CA Est. over $100,000. tank car repair PLANT, MONTREAL, QUE. Canadian General Transit Co., Ltd., 621 Craig St. W., Montreal, Que. Bids May 22, awarded June 3. CD 5/20.

**Gelinas & Lalonde Construction Ltee.**, 64 Marial St., Laval des Rapidse, Montreal, Que., Owner Builds, $750,000. 50 bungalow HOUSING Program, Marial and Desmarteaux Sts., MONTREAL, QUE.

▲ **Elite Investment Corp.**, 5810 Cote St. Luc Rd., St. Vincent de Paul, Que., Owner Builds, $1,500,000 HOUSING Project, Suzanne Ave., MONTREAL, QUE. Ben-Ami Shulman, 5174 Cote des Neiges Rd., Montreal, archt.

**Community Enterprises Ltd.**, 610 St. James St. W., Montreal, Que., Owner builds, $750,000, 1½-story, split level with bsmnt., conc. foundation, brick walls BUNGALOWS, MONTREAL, QUE., Philip F. Goodfellow, 1117 St. Catherine St. W., Montreal, Que., archt.

▲ **West Hill Constr., Ltd.**, 5950 Cote des Neiges Rd., Montreal, Que., CA est. $1,200,000, 13 story and bsmnt., conc. foundation, rein.-conc. frame, brick walls APARTMENT bldg. on Cedar Ave., MONTREAL, QUE., 1745 Cedar Inc., c/o contractor, awarded June 5.

**Beton Constr. Co.**, 3221 Forest Hill Ave., Montreal, Que., CA est. $950,000, 12 story and bsmnt., conc. foundation, brick walls, rein.-con. frame APARTMENT bldg. on Pine Ave. W., MONTREAL, QUE., H. Robitaille, c/o contractor, awarded June 4.

# ALASKA

## HEAVY CONSTRUCTION—BA

† **Alaska**—LABORATORY BUILDING—BA 6/20—U. S. Eng., Anchorage, 38x50 ft. frame National Bureau of Standards laboratory bldg., Elmendorf Air Force Base, Inv. 57-87. CD 8/22/55.

† **Alaska**—BA 7/2—U. S. Eng., Anchorage, 2 rock mound breakwaters and dredging to enlarge small-boat basin at Bar Point, Anchorage, Inv. 57-6, $2,035,000.

## HEAVY CONSTRUCTION—LB & CA

† **Motorola Inc.**, J. S. Ditty Bldg., Bellevue, Wash., LB $272,150 (2 bidders) microwave communication system between Anchorage and Portage, ALASKA The Alaska Railroad, Dpt. Interior, Anchorage, Alaska. Bids June 3. CD 5/14.

† **Moore & Moseley**, Fairbanks, Alaska, LB $434,400 est. $356,044, (5 bidders) two 40,000 gal. water storage tanks, pumphouse and connecting concrete utilidor at Air Force Station, Inv. 57-57, CAPE LISBURNE, ALASKA U. S. Eng., Anchorage, Alaska. Bids June 6. CD 5/8.

# PROPOSED PROJECTS

## WATER SUPPLY

**Ky., Florence**—Village, Village Hall, 500,000 gal. water storage tank. $230,000.

## SEWERS, WASTE DISPOSAL

**Ky., Beachwood Village**—Bd. Village Trustees, Beachwood Village, sanitary sewerage sys. $277,000.

**Mass., Ipswich**—Town, Bd. Selectmen, Town Hall, sewerage sys. $603,000. Constr. 1958. CD 6/10/49.

**Vt., South Burlington**—Town, Fire Dist. No. 4, South Burlington, enlarging South Sewage Plant and outfall to lake. $150,000. Joseph A. K. Kestner, 189 N. Lake Ave., Troy, N .Y., consult. engr. Hoag & Assocs., Inc., 370 Shelburne Rd., South Burlington, assoc. engr.

**Ont., Brighton**—Ontario Water Resources Comn., East Block, Parliament Bldgs., Toronto, sewage treatment plant, near Harbor and Prince Edward Sts. $565,000.

## BRIDGES

▲ **N. Y., Mayville**—Bd. Supervs., Chatauqua Co. Court House, bridge over Chatauqua Lake between Stow and Bemus Point, $1,050,000-$1,550,000. DeLeuw Cather & Brill, 202 E. 44 St., New York, N. Y., consult. engrs.

▲ **Que., Cote St. Luc**—Town of Cote St. Luc, Town Hall, Dpt. Transport, Hunter Bldg., Ottawa, Ont., and Canadian Pacific Ry. Co., Windsor Station, Montreal, underpass under Canadian Pacific Ry. Co. tracks at Westminster Ave. $1,000,000.

## STREETS AND ROADS

**O., Cleveland**—City, Dpt. P. Service, Louis L. Drasler, comr., City Hall, Zone 14, paving Brooklawn Ave. from W. 117 to W. 130 Sts. $160,000. Bids this summer. Jay R. Katz, city engr. CD 11/7/52.

**QUEBEC**—Provincial Roads Dpt., Parliament Bldgs., Quebec City,

**Morse Line**—road work, grading, grav. and asphalting at Morse Line via Pigeon Hill about 10 mi. $100,000.

## EARTHWORK, WATERWAYS

**Iowa**—Iowa Conservation Comn., E. 7 and Court Sts., DesMoines, Prairie Rose Lake, Shelby Co. $300,000. Glen Powers, c/o owner, engr. CD 12/10/52.

## AIRPORTS

▲ **Ill., Chicago**—AIRPORT—City, City Hall, voted bonds June 3, constr. O'Hare International Airport. $15,000,000, CD 5/15.

† **N. D., Fargo**—ADMINISTRATION BLDG.—U. S. National Guard, Heber Edwards, adj., Bismarck, administration bldg. at Hector Air Field. $250,000.

## PUBLIC BUILDINGS

▲ **Calif., Azusa**—SCHOOL—Citrus Union High School Dist., voted bonds May 17, school constr. $2,500,000; 6/27/57.

▲ **Calif., Santa Monica** — SCHOOL BLDGS. — Santa Monica School Dist., Santa Monica, voted $10,500,000 bonds June 4, incl. constr. and rehabilitation Santa Monica City College bldgs., $3,700,000; high school $3,000,000; Malibou Junior High School, $2,500,000; elementary school, $653,000; remainder of bond issue will be used for general rehabilitation. John C. Lindsay & Assocs., Santa Monica and 827 Moraga Dr. West, Los Angeles, Calif., archts. (for Santa Monica High School). Smith, Powell & Morgridge, 208 W. 8th St., Los Angeles, Calif. archts. (for Santa Monica City College). CD 3/8.

**Conn., Meriden**—SCHOOL ADDN.—Town, Town Hall, plans by Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, Lincoln Junior High School addn., alterations, $400,000. Paul D. Bemis, 36 Pearl St., Hartford, and A. John Macchi, 57 Farmington Ave., Hartford, consult. engr. CD 11/23/55.

▲ **Fla., Gainesville**—SCIENCE CENTER—Florida State Bd. of Control, Education Bldg., Tallahassee, science center for nuclear research at University of Florida, $2,000,000.

▲ **Ill., Chicago**—SCHOOL—City, Bd. Educ., voted bonds, school bldgs. $50,000,000.

▲ **Ill., Chicago**—INSTITUTION—City, City Hall, voted bonds, enlarging correctional and penal institutions. $1,000,000. CD 5/31.

▲ **Ill., Chicago**—MUNICIPAL—City, City Hall, voted bonds June 3, municipal bldgs. $9,000,000. CD 5/15.

▲ **Ill., Chicago**—HOME—Cook Co., voted bonds, Audy Home addn. $1,700,000.

▲ **Ill., Chicago**—HOSPITAL—Cook Co., voted bonds, hospital infirmary addns. $12,300,000. CD 5/25/56.

**Ill., Waterloo**—NURSING HOME—Monroe County, Bd. Supervisors, Court House, voted $300,000 bonds June 3, addn. to county nursing home, $350,000.

**Iowa, Exira**—SCHOOL—Bd. Educ., Community School Dist., Exira, $595,000 bond election June 27, Junior-Senior High School.

**Ky., Bowling Green**—MANUFACTURING—City, City Hall, plans by Frank D. Cain, Jr., 1006 State St., 12,500 sq. ft., brick, concrete mfg. plant addn. Over $100,000. Bowling Green Mfg. Co., lessee. Engineering Services, R.R. No. 2, Hopkinsville, consult. engrs.

**Mass., Framingham**—HOME—State, Commonwealth of Mass., Dpt. P. Health, State House, Boston, conversion of Cushing General Hospital to Home for Elderly Persons $895,000. constr. 1957-58.

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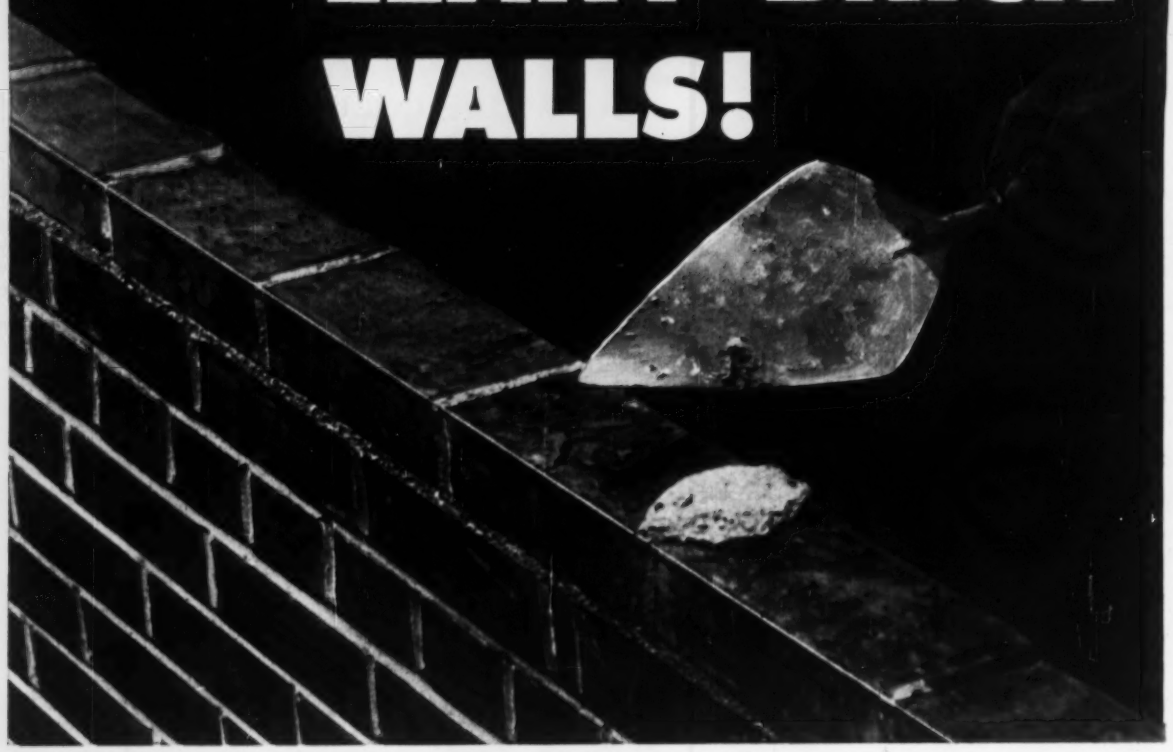

PARTIALLY filled head joints are one of the common causes of leaky brick walls.

Instead of throwing enough mortar on the brick to fill the joint completely, bricklayers often spot a dab of mortar only on one or both corners of the brick—and then slush the head joint after the brick is laid. This slushing is not enough to fill the joint solid. Result—water may work its way through voids in the head joint, to the inside of the wall.

**Brixment's exceptional workability makes it easy for the bricklayer to use enough mortar to completely fill the joints without slushing, and still lay the brick easily and accurately to the line.**

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# BRIXMENT

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Mass., **Malden**—HOUSING—City, Housing Authority, 275 Newland St., Section 2, housing for the elderly, 30 units, on site of Linden Grammar School, $350,000. constr. 1958. CD 1/13/53.

Mass., **Marston's Mills**—SCHOOL—Bd. Selectmen, City Hall, elementary school. $440,000. Constr. 1958.

▲ Mass., **Wakefield**—SCHOOL—Town, Supt. Schools, 465 Main St., junior high school, $1,000,000. 1958 constr.

▲ Mass., **Warren**—SCHOOL—Towns, Warren, West Brookfield, and West Braintree, regional high school, $1,000,000. 1958 constr.

Mich., **Hartland**—SCHOOL—Bd. Educ., Hartland School Dist., voted bonds May 28, high school. $850,000.

Minn., **Excelsior**—SCHOOL—Bd.. Educ., Joint Independent School Dist. No. 7, Minnetonka, W. T. Frommes, clk., plans by Bissell & Belari, 1111 Nicollet Ave., Minneapolis, 12 room Junior High School addn. $420,000. CD 5/31.

Miss., **Columbus**—DORMITORY—Mississippi State College for Women, dormitory. $662,000.

▲ Minn., **Minneapolis**—RESIDENCE HALL—Regents of the University of Minnesota, C. A. Smith, purch. agt. 404 Administration Bldg., Zone 14, plans by Ellerbe & Co., E. 505 1st National Bank Bldg., St. Paul, men's residence hall, $2,079,655. To go ahead within 2 yrs. CD 12/23/55.

Mo., **Carrollton**—SCHOOL—Carroll Co. Bd. Educ., School Dist., R-VII W. K. Adams, supt. schools, Carrollton, voted $900,000 bonds May 21, 1 story high school. Marshall & Brown, 1016 Baltimore Ave., Kansas City 5, Mo., archts.

N. J., **Lawrence Twp.**—SCHOOL—Bd. Educ., Lawrence Twp., Princeton Pike, Trenton, plans by Micklewright & Mountford, 90 E. Stuyvesant Ave., Trenton, Lawrence Junior High School addn. and 6-room Slackwood Elementary School addn. $690,000. (alternate plans being studied for comparative costs.)

N. J., **Lawrenceville**—SCHOOL—Bd. Educ., Twp. of Lawrence, plans by Micklewright & Mountford, E. Stuyvesant Ave., Trenton, Junior High School addn. $700,000.

N. Y., **Brooklyn**—STABLE—Dpt. P. Wks., Municipal Bldgs., New York, Zone 7, Proj. PO-70, new stable for Police Dpt. $370,000. To go ahead after 1962.

▲ N. Y., **New York**—POLICE—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. PO-82, new building to replace present 6th and 85th Precincts for Police Dpts. $1,267,250. To go ahead after 1962.

N. Y., **New York**—SHOP—Dpt. P. Wks., Municipal Bldg., Zone 7, Proj. HO-231, new automitove repair shop, Welfare Island, for Dpt. Hospitals. $780,000. To go ahead after 1962.

N. Y., **New York**—STATION HOUSE—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. PO-64, new 20th Precinct Station House for Police Dpt. $757,000. To go ahead after 1962.

N. Y., **New York**—STATION HOUSE—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. PO-27, new 25th Precinct Station House for Police Dpt. $650,000. To go ahead after 1962.

N. Y., **New York**—STATION HOUSE—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. PO-83, new 14th Precinct Station House for Police Dpt. $757,500. To go ahead after 1962.

▲ O. **Bowling Green**—ROTC, etc.—Ohio Dpt. P. Wks., State Depts. Bldg., Columbus, multiple purpose ROTC physical education and gymnasium bldg., $1,250,000; physical science bldg., $850,000; sewerage system, $500,000, all for Bowling Green State University.

Tenn., **Chattanooga**—SCHOOL—Hamilton Co. Bd. Ed., Chattanooga, constr. high school for Soddy-Daisy Community in Hamilton Co., $600,000. CD 11/3/52.

Tenn., **Nashville**—ADMINISTRATION—State Bldg. Comn., Nashville, constr. administration bldg. for A&I State University. $500,000.

▲ Tex., **Corpus Christi**—ADMINISTRATION, etc.—Del Mar College, c/o Bd. Regents, 101 Baldwin St., voted bonds May 25, administration bldg., $700,000; classroom bldg. and 4 shops, $375,000; vocational shop remodeling, $150,000.

Tex., **Cypress**—SCHOOL—Cypress-Fairbanks Independent School Dist., c/o County School Bd., voted bonds June 1, school. $475,000. CD 5/8.

Utah, **Price**—AUDITORIUM—Utah State Bldg. Bd., 419 State Capitol, Salt Lake City, plans by Fetzer & Fetzer, 415 Zion's Savings Bank Bldg., Salt Lake City auditorium for Carbon College. $350,000.

▲ Wash., **Spokane**—ADMINISTRATION, etc.—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, admin. bldg. structures for motor pool and supply sections and rocket storage bldg. at Geiger Air Force Base for Air National Guard. $1,500,000. Work expected to start this year. CD 3/11.

Ont., **Elliot Lake**—HOUSING—Central Mortgage & Housing Corp., Montreal Rd., Ottawa, Elliot Lake Chamber of Commerce and Stanrock Uranium Mines Ltd., Elliot Lake, 104 housing units, incl. row-housing and 60 apartments. $770,000.

Ont., **Toronto**—APARTMENTS—City, City Hall, plans by Jackson Ypes & Assocs., 5385 Yonge St., Toronto, 8 story 109-suite apartments for elderly persons, downtown Sherbourne St. area, $985,000. CD 6/3/49.

## COMMERCIAL BUILDINGS

▲ Mass., **Boston**—DORMITORY—Boston University, 755 Commonwealth Ave., plans by Harbeson, Hough, Livingstone & Larson, Architects Bldg., Philadelphia, Pa., women's dormitory, Bay State Rd. & Sherman St., $2,000,000. Von Storch, Evans & Burkavage, Box 14, Waverly, Pa., consult. archts. CD 7/30/56.

▲ Mo., St. **Louis**—OFFICE—The Caradine Hat Co., Raymond H. Wittcoff, vice pres. and dir. of Bldg., Development, 8 S. 4th St., Zone 2, plans by Jamieson, Spearl, Hammond & Grolock, 1696 Arcade Bldg., 812 Olive St., Zone 1, 10 story, bsmnt. brick, steel, concrete, glass etc., office bldg., with modernization and integration of adjoining International Fur Exchange Bldg., and inside garage, 14 S. 4th St., $2,500,000. William C. E. Becker, 417 N. 7th St., St. Louis, Zone 1, structural engr. John D. Falvey, 316 N. 8th St., St. Louis, Zone 1, mechanical engr. CD 6/4.

Neb., **Lincoln**—MOTEL—Schimmels Hotels Co., c/o Blackstone Hotel, 36 and Farnam Sts., Omaha, motel on highway close to here. $400,000.

N. J., **Bergenfield**—FOOD MARKET—Food Fair, Inc., 2225 E. Allegheny Ave., Phila., Pa., plans by Kasoff Bisano, 3232 Tulip St., Phila., Pa., 165x124 ft. food market, West Central Ave. $350,000.

N. J., **Packanack Lake**—CHURCH, etc.—Packanack Community Church plans by Ferrenz & Taylor, 152 W. 42nd St., New York, N. Y., 1 story, 46x103 ft. all purpose social room; 48x106 ft. church with fellowship hall as bsmnt. and 17x31 ft. boiler room on level with fellowship hall, all steel beams, brick faced constr. $350,000-$400,000.

▲ N. Y., **New York**—APARTMENT—15 East 86 St. Corp., 12 E. 48 St., Zone 17, plans by Sylvan Bien, 33 W. 46 St., Zone 19, apartment, 11-19 East 86 St. $1,250,000.

▲ N. Y., **New York**—APARTMENT—Victor Sager, 141 E. 55 St., New York, Zone 22, plans by Greenberg & Ames, 303 Fourth Ave., New York, Zone 10, apartment, 504-510 E. 86 St. $1,000,000.

N. Y., **Tonawanda**—SCHOOL, etc.—Temple Beth Zion, 599 Delaware Ave., Buffalo, suburban Sunday School and meeting room. $400,000. J. Fruchtbaum, 1965 Sheridan Dr., Kenmore, consult. engr.

▲ O., **Brunswick**—SHOPPING CENTER WITH PARKING—Brunswick Plaza, Inc., 3966 W. 25 St., Cleveland, Zone 9, plans by Weinberg & Teare, Citizens Bldg., Cleveland, Zone 14, 38-unit, brick, glass and aluminum, 250,000 sq. ft. shopping center with parking for 2,000 cars, Pearl Rd. and City Rte. 138, $3,000,000, work to start in a few weeks.

▲ O., **Columbus**—DEPARTMENT STORE—F. & R. Lazarus & Co., S. High St., plans by Benham, Richards & Armstrong, 1124 Goodale Blvd., 10-story, 100,000 sq. ft., addn. to existing department store, $5,000,000, Raymond Loewy, designer of facade. CD 11/20/56.

O., **Cincinnati**—HOMES—John Carpenter, 2032 Carpenter Dr., 30 brick homes, Goda Ave. $540,000.

O., **Dover**—CHURCH, etc.—First Methodist Church, Dover, plans by Marr, Knapp & Crawfis, New Philadelphia, church and educational unit., N. Wooster Ave. and Deis Lane. $400,000.

▲ Ore., **Portland**—OFFICE—First National Bank of Portland, 404 S. W. 6 Ave., revised plans by Stanton, Boles, Maguire & Church, Concord Bldg., 5 story, 100x200 ft., head office bldg. $3,500,000. CD 2/14.

▲ Ore., **Portland**—HOSPITAL—Kaiser Permanent Foundation, c/o Kaiser Industries Corp., Edgar F. Kaiser, pres., East Vancouver, Wash., plans by Wolff & Zimmer, 509 Pearson Bldg., Zone 4, Bess Kaiser Memorial Hospital. $3,000,000.

R. I., **Portsmouth**—MONASTERY, etc.—Portsmouth Priory & School, Very Rev. Don Aelred, Graham, Prior, Cory's Lane, plans by Pietro Belluschi, 77 Massachusetts Ave., Cambridge, monastery and church. $600,000.

▲ R. I., **Providence**—DORMITORY—Rhode Island School of Design, 14 College St., Providence, plans by Cull, Robinson & Green, 385 Benefit St., 2 dormitory quard ranges, Waterman & Angell Sts., and Benefit and Prospect Sts. $1,500,000. CD 3/14/55.

▲ Tex., **Mesquite**—DWELLINGS—Tynes & Burch, 2633 S. Garland Ave., Garland, and c/o Fidelity Union Life Bldg., Dallas, 32 brick veneer dwellings $357,000; 42 brick veneer dwellings, $384,000; 41 brick veneer dwellings, $381,000; 38 brick veneer dwellings, $375,125; 36 brick veneer dwellings, $371,400; 31 brick veneer dwellings, $347,100, all in "Pasadena Gardens" section.

Wash., **Spokane**—DORMITORY—Whitworth College, Country Estates, plans by E. W. Molander & Assocs., W. 524 4th St., 3 story men's dormitory, $600,000. Work to start this summer. CD 6/6.

▲ Man., **Winnipeg**—OFFICE—Canadian Pacific Railway Head Office, Montreal, Que., 3 story, bsmnt., 20,000 sq. ft., rein.-con., brick office bldg., Henry Ave. and Lily St. $2,000,000.

Ont., **St. Thomas**—HOUSING—Lambton Lands, Ltd., 694 Kemsley Dr., Sarnia, 49-unit housing development, Over $400,000.

▲ Ont., **Sudbury**—UNIVERSITY—Society of Jesus (Jesuits) c/o Sacred Heart College, Sudbury, plans by Bernard T. Barbeaux Assocs., 191 College St., university. $3,000,000.

## INDUSTRIAL BUILDINGS

Ill., **Chicago**—SANITARY—U. S. Steel Corp., 3426 E. 89th St., 2 story, brick sanitary bldg., E. 89th St., $200,000.

Ky., **Paris**—FREIGHT HOUSE—Louisville & Nashville R.R. Co., H. F. Forman, ch. engr., 908 W. Broadway, Louisville, Ky., (A) freight house, (B), paving, (C), 300 ft. spur track, over $100,000.

N. Y., **Brooklyn**—TANKS—Brooklyn Union Gas Co., 176 Remsen St., Brooklyn, plans by Lloyd A. Hunziker, c/o owner, 3 steel storage tanks, 438 Varick Ave., $295,000.

N. Y., **Cheektowaga**—WAREHOUSE, etc.—Gibraltar Steel Co., 35 Roetzer St., Buffalo, 40,000 sq. ft. warehouse and office, 13-acre site on New Walden Ave., $250,000.

O., **Columbus**—PARKING GARAGE—Frederick W. LeVeque, 50 Broad St., plans by Tibals-Crumley-Musson, 965 E. Broad St., 14 story 200-car parking garage just north of LeVeque-Lincoln Tower 50 W. Broad St., $1,000,000. Paul J. Ford, 965 E. Broad St., consult. engr.

O., **Independence**—WAREHOUSE—Westcreek Corp., 7555 Bessemer Ave., Cleveland, Zone 27, 1 story brick, concrete warehouse, Brecksville and Schaaf Rds. $750,000. Arnold Turkel, 3785 Westwood Rd., University Heights, Zone 18, consult. engr. Bing Furniture Co., lessee.

Tex., **Austin**—SHOP, etc.—Owner, c/o 306 Perry-Brooks Bldg., plans by Archie Young & Assocs., archts and consult. engrs., 403 N. Main St., Victoria, shop, storage, display, $150,000. Anthony Toprac, 1418 W. 31st St., consult. eng.

Wash., **Seattle**—SHIP BLDG. WAY—Todd Shipyards Corp., 1801 16 Ave. S.W., shipbldg way. $300,000. Work to be completed by next March.

Ont., **Brockville**—WAREHOUSE—J. A. Johnston Co. Ltd., 34 Buell St., warehouse, $500,000.

Ont., **Port Dover**—FACTORY—Humberstone Shoe Co., C. M. Dare, mgr., Port Dover, footwear factory $100,000.

## UNCLASSIFIED

▲ Ill., **Chicago**—PARKS, etc.—City, City Hall, voted bonds June 3, municipal parks and playgrounds and public beaches, $6,000,000; Chicago parks imprv., $15,000,000. CD 5/16.

▲ Ill., **Chicago**—TRANSIT MEDIAN STRIP—City, City Hall, voted bonds June 3, rapid transit median strip, Congress Expressway and N. W. Hy. $10,000,000. CD 5/15.

Kansas—RURAL DISTRIBUTION LINES—Sugar Valley Electric Co-operative Assoc., Mound City, 45 mi. rural distr. lines and sys. imprvs. Linn Co. $210,000.

Montana—RURAL DISTR. LINES—Big Horn Co. Electric Co-operative, Lodge Grass, 20 mi. electric distr. line and sys. imprvs., Big Horn Co. $204,000. CD 8/16/55.

▲ N. J., **Edgewater**—CLUB—Louis D. Harris, 314 West 44th St., New York, N. Y., cabana club on old ferry site on River Rd. $1,500,000.

▲ N. Y., **Brooklyn**—WHARF TERMINAL—Dpt. Marine & Aviation, Pier 8, North River, New York, Zone 4, wharf terminal, foot of 29 St., Proj. D-247, $1,000,000. To go ahead in 1957.

N. Y., **Brooklyn**—PLAYGROUND AREA—Dpt. Parks, Arsenal Bldg., New York, Zone 21, Proj. P-289, development of area playground, Ave. D, E. 56 and E. 57 Sts. $253,500. To go ahead in 1957.

N. Y., **Brooklyn**—PARK—Dpt. Parks, Arsenal Bldg., New York, Zone 21, reconstr. Fulton Park, Proj P-163, Chauncey and Fulton Sts., and Stuyvesant and Lewis Aves. $105,250. To go ahead in 1957.

▲ N. Y., **Fresh Kills**—CORPORATION YARD, etc.—President Richmond Boro, Borough Hall, St. George, Staten Island, N. Y., corporation yard, incl. dock, fencing, garages, asphalt plant and other appurtenances. Fresh Kills Area, PR 43A, $2,700,000.

N. Y., **New York**—PLAYGROUND—Dpt. Park, Arsenal Bldg., New York, Zone 21, Proj. P-101, development of area at playground adjoining P.S. 192, $498,500. To go ahead in 1957.

N. Y., **New York**—PLAYGROUND—Dpt. Parks, Arsenal Bldg., New York, Zone 21, development of area Fulton Park Playground, Proj. P-367, $127,000. To go ahead in 1957.

North Carolina—RURAL DISTRIBUTION LINES—Four County Electric Membership Corp., Burgaw, 130 mi. rural distr. lines and sys. imprvs., Sampson Co., $635,000. CD 2/14/51.

Ohio—RURAL DISTRIBUTION LINES—Washington Electric Co-operative, Marietta, 25 mi. rural distr. lines and sys. imprvs., Washington Co. $650,000. CD 8/23/46.

O., **Mariemont**—SWIMMING POOL, etc.—Village, Plainville Rd., 42x105 ft., swimming pool, wading pool, filter plant, bath house, etc., $160,000. Carl A. Rehring, 6988 Crystal Springs, Mariemont, and Wayne A. Becker, 3427 Corrine Ave., Cincinnati, consult. engrs. CD 10/19.

O., **Oxford**—STADIUM—Ohio Dpt. P. Wks., State Dpts. Bldg., Columbus, stadium at Miami University. $100,000-$120,000.

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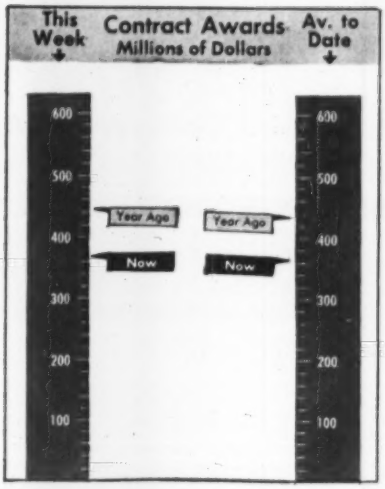
# Construction Scoreboard

## Activity this Week




### AMOUNT OF CONTRACTS LET

| By Ownership | This Week | Cum. 25 wks 1957 | Chge '56-'57 % |
|---|---|---|---|
| | millions | | |
| Federal | $49.2 | $1,343.2 | +57 |
| State and Municipal | 136.0 | 3,495.9 | +15 |
| Total Public | 185.2 | 4,839.1 | +24 |
| Total Private | 185.7 | 4,276.3 | −39 |
| U. S. Total | $370.9 | $9,115.4 | −17 |
| **By Type of Work** | | | |
| Waterworks | $5.3 | $191.3 | +26 |
| Sewerage | 12.5 | 248.0 | −17 |
| Bridges | 16.7 | 348.7 | +16 |
| Highways | 44.6 | 1,452.6 | +27 |
| Earthwork, Waterways | 8.7 | 575.0 | +84 |
| Buildings: | | | |
| Public, Excl. Housg. | 38.7 | 1,060.2 | +10 |
| Public Housing | 27.2 | 345.2 | +98 |
| Private Housing | 62.2 | 1,515.6 | −49 |
| Commercial | 39.7 | 835.9 | −11 |
| Industrial | 81.6 | 1,691.9 | −39 |
| Unclassified | 33.7 | 851.0 | −8 |
| U. S. Total | $370.9 | $9,115.4 | −17 |

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

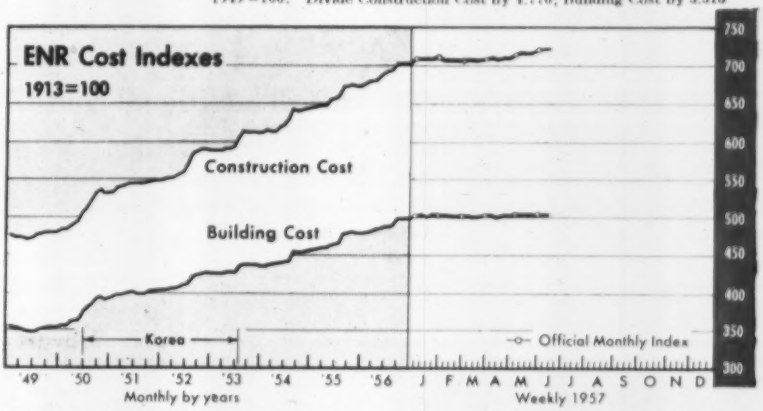
### NEW CAPITAL FOR CONSTRUCTION

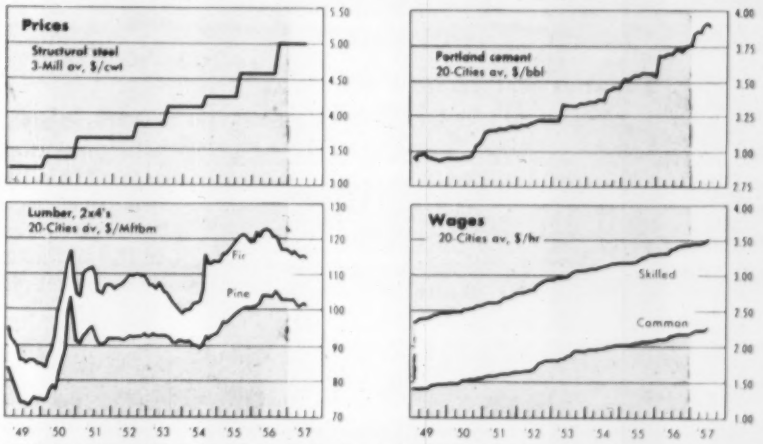
| | Week of June 13 | Cum. 24 wks 1957 | Chge '56-'57 % |
|---|---|---|---|
| | millions | | |
| Corporate Securities | $223.8 | $2,921.4 | +40 |
| State and Municipal: | | | |
| All Except Housing | 109.6 | 2,641.7 | +20 |
| Housing | 0.1 | 41.5 | +101 |
| Federal Loans | 2.7 | 108.1 | +67 |
| Federal Aid | 1,715.0 | 1,965.0 | +1865 |
| Total Nonfederal | $2,051.2 | $7,677.7 | +72 |
| Federal Appropriations: | | | |
| In U. S. | $26.8 | $27.7 | −53 |
| Outside U. S. | 13.0 | 13.0 | ... |
| Total New Capital | $2,090.9 | $7,718.4 | +71 |

## Cost Indexes as of Now

| ENR INDEXES (1913 = 100), 20-cities' average | Week of June 13 1957 | % Change from May 16 1957 | % Change from June 14 1956 |
|---|---|---|---|
| Construction Cost | 722.94 | +0.6 | +4.4 |
| Building Cost | 504.63 | +0.3 | +3.3 |

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518




### ENR COST INDEXES IN 22 CITIES, 1913 = 100

| City | Construction Cost June 1957 | Construction Cost Percent Change from last Month | Construction Cost Percent Change from last Year | Building Cost June 1957 | Building Cost Percent Change from last Month | Building Cost Percent Change from last Year |
|---|---|---|---|---|---|---|
| Atlanta | 523 | 0 | +4.2 | 442 | 0 | +4.2 |
| Baltimore | 643 | 0 | +8.2 | 503 | +0.7 | +2.4 |
| Birmingham | 556 | 0 | +1.1 | 457 | 0 | +2.3 |
| Boston | 746 | −0.3 | +0.3 | 518 | +0.5 | +2.9 |
| Chicago | 831 | +5.1 | +5.5 | 511 | +0.9 | +2.1 |
| Cincinnati | 713 | 0 | +4.9 | 489 | 0 | +2.8 |
| Cleveland | 856 | 0 | +5.8 | 522 | 0 | +2.8 |
| Dallas | 525 | 0 | +3.1 | 439 | 0 | +3.5 |
| Denver | 702 | 0 | +4.8 | 510 | 0 | +4.6 |
| Detroit | 823 | +1.7 | +2.9 | 535 | +1.4 | +4.1 |
| Kansas City | 735 | 0 | +3.7 | 503 | 0 | +1.3 |
| Los Angeles | 731 | 0 | −0.2 | 496 | 0 | +0.9 |
| Minneapolis | 781 | +3.8 | +4.6 | 530 | +1.7 | +2.9 |
| New Orleans | 572 | 0 | +1.4 | 467 | 0 | +2.3 |
| New York | 852 | −0.1 | +4.0 | 578 | −0.2 | +3.9 |
| Philadelphia | 780 | 0 | +5.9 | 560 | 0 | +4.1 |
| Pittsburgh | 762 | 0 | +10.7 | 541 | 0 | +8.2 |
| St. Louis | 789 | 0 | +4.3 | 538 | 0 | +3.0 |
| San Francisco | 758 | +5.0 | +4.3 | 489 | 0 | +2.3 |
| Seattle | 749 | 0 | +4.1 | 456 | 0 | +2.7 |
| **U. S.—20 Cities' avg.** | **721** | **+0.8** | **+4.2** | **504** | **+0.2** | **+3.2** |
| Montreal | 586 | +0.4 | +4.7 | 451 | +0.5 | +3.2 |
| Toronto | 611 | 0 | +8.7 | 469 | 0 | +4.3 |

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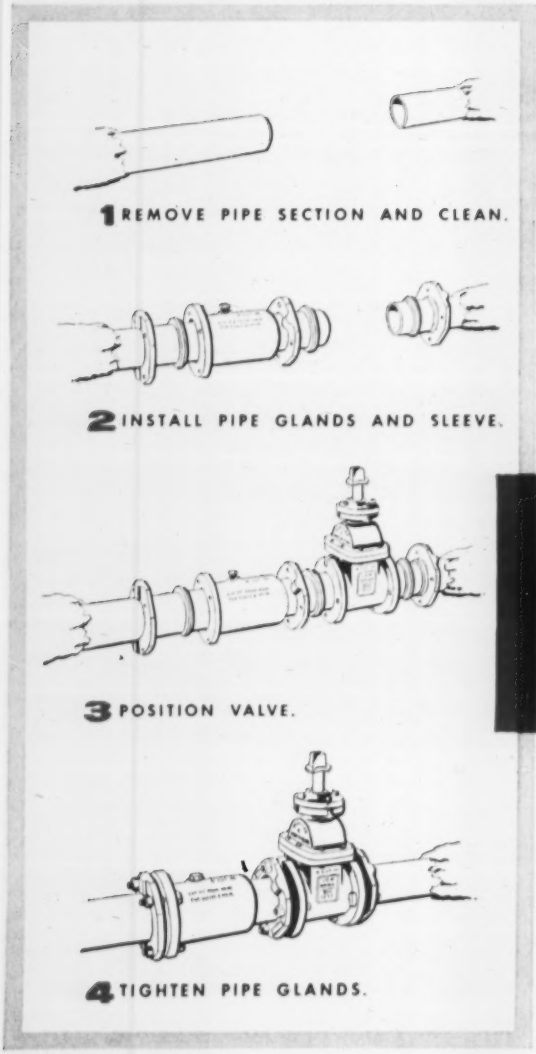

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4 TIGHTEN PIPE GLANDS.

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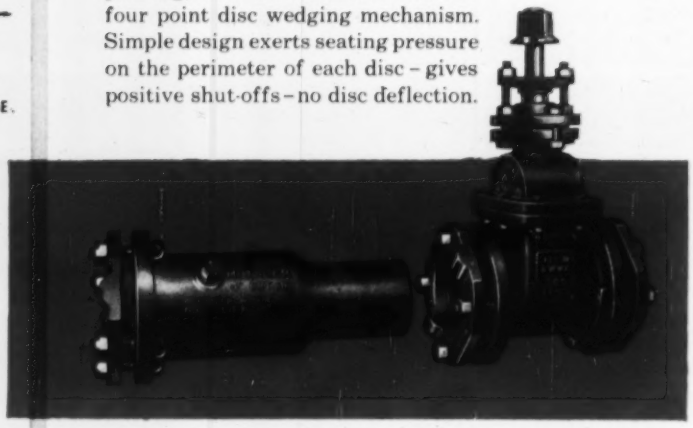

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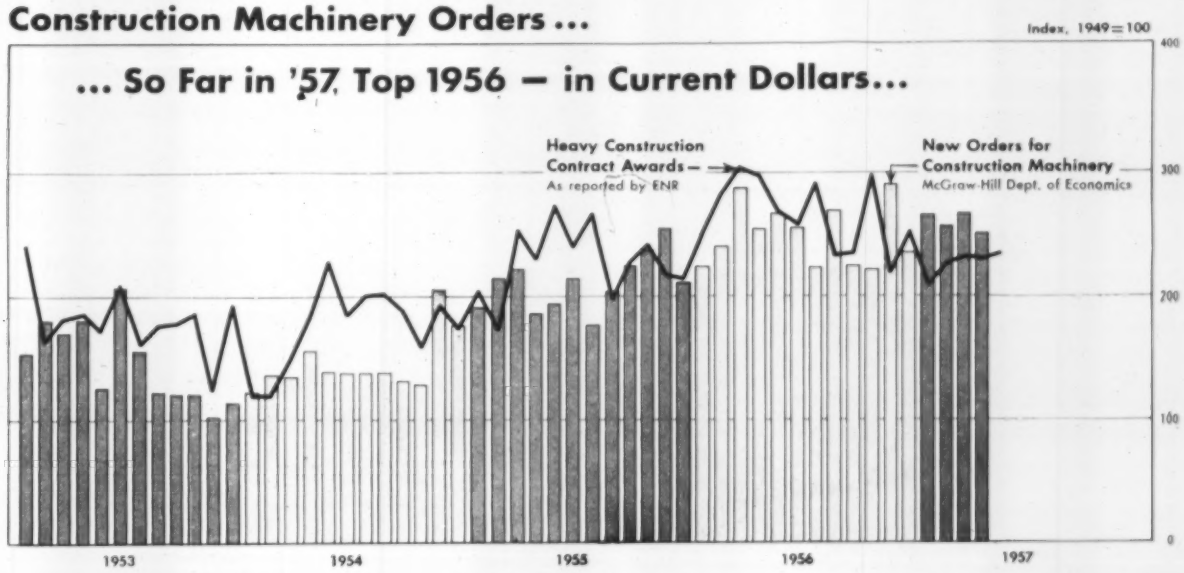


**So, with their order volume reflecting a 19% drop in construction contracts . . .**

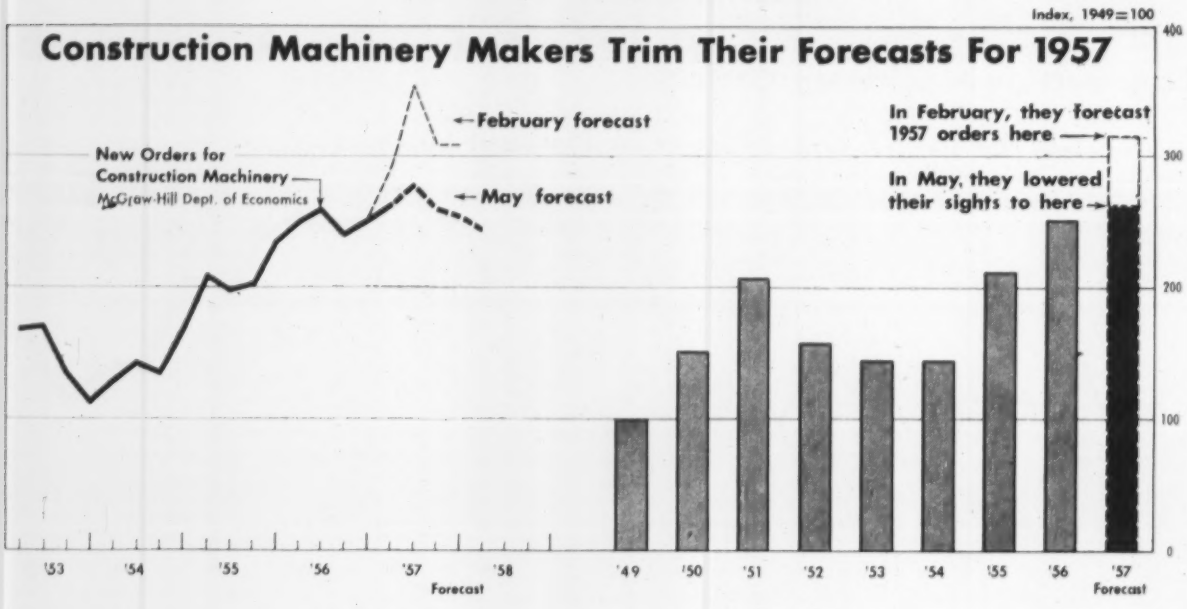
# Machinery Makers Trim Their Forecasts

The once optimistic manufacturers of construction machinery and equipment are having some serious second thoughts about the amount of new business they expect to sign up this year.

At first glance, the machinery makers seem to be in good shape. New orders for construction and mining machinery are running 3% ahead of last year, according to the McGraw-Hill Department of Economics' index.

During the first four months of 1957, this index averaged 261 (based on 1949 = 100), second only to 1951's record high of 274 for this period. The monthly dollar value of new orders has been consistently high so far this year. But, there's another side to the coin.

One worrisome point is that while the dollar value of new orders for construction machines has been holding up, heavy construction contracts, as reported by ENGINEERING NEWS-RECORD,




have been going down. If this divergence was slight, it probably would not be significant. But, construction contracts for the first five months of the year are 19% below the record high set in the same months last year.

Another point is that even though total machinery orders in the January through April period topped 1956, the orders dipped in April for the second consecutive month. (The April orders index value of 252 was off 1% from 1956.) This means that the edge in orders that 1957 has held over 1956 is shrinking.

A third point is that there has been a 9% increase in prices since last year. If this is taken into account, "physical volume" of machines now being ordered actually is running below 1956.

These factors have had a noticeable effect on the machinery makers' crystal gazing. The budding optimism of construction machinery manufacturers that was much in evidence in February has given way to a much more conservative outlook for new orders for the balance of 1957.

The difficulty of making valid long-term predictions in construction machinery orders is emphasized by the manufacturers' current plight. Their current estimates of 1957 sales volume are lower than the forecasts they made in November of last year.

At that time, the manufacturers were expecting an increase of 8% in the value of orders for the first nine months of 1957, compared with the same period in 1956. But, by February of this year, they had raised their sights and were predicting a 26% jump in dollar value of orders for the January through September period of 1957, as against 1956.

The newest forecast, compiled by the McGraw-Hill Department of Economics from individual predictions made by cooperating companies, now points to a 5% rise in dollar value of new orders for 1957 in comparison with 1956.

The new orders trend forecast shows a fairly steady decline in the last six months of 1957, from a second quarter index high of 279 (based on 1949 = 100) to a fourth quarter low of 253. A continued decline is expected in the first quarter of 1958 when the new orders index may sag to about 244. This would be 7% less than in the first quarter of 1957 and 3% below the first quarter of 1955.

Such a forecast is based, at least in part, on the general level of contract award activity. But not all of the blame for the current disappointing sales volume for construction machinery falls on the downturn in contract volume. Weather is considered by some to be one of the culprits.

## First Kansas City Tollroad Contracts Awarded

The Kansas Turnpike Authority has awarded the first contract on the five mile 18th Street Expressway in Kansas City to Kansas City Structural Steel Co. for $2,214,390–$9,000 less than the engineers' estimate.

The contract provides for purchase of steel and construction of the superstructure for a 2,217 ft bridge spanning the Kansas River.

For the substructure, the Authority has agreed to negotiate with U. S. Steel Corp. to buy some 6 million pounds of steel piling.

The expressway—the second toll project in Kansas—will run from near the east end of the 236 mi Kansas Turnpike in Kansas City, southward into populous Johnson County to connect with U. S. Highway 50. The toll barrier will be located at the bridge.

• **Close pike section**—In an unrelated action, the Kansas Turnpike Authority has voted to close the south four miles of the tollroad until Oklahoma completes its connection. A road block will be set up at U. S. Highway 166 near South Haven, Kan.

The decision to close the south section came because heavy construction machinery will be in the area in June, officials said.

Meanwhile, across the state border, Oklahoma will open bids next month for a bridge and five miles of 4 lane highway to U. S. 177. The job is expected to be completed in 120 to 150 working days.

Previously, traffic went to the border, then switched to an Oklahoma county road. But the Jay County, Okla., county commission recently ordered the county road closed to through traffic because it was being torn up, and asked the Kansas Turnpike Authority to help maintain it.

(*B&F continued on page 147*)

# The New UNIT Model 510 Challenger ... with Clamshell

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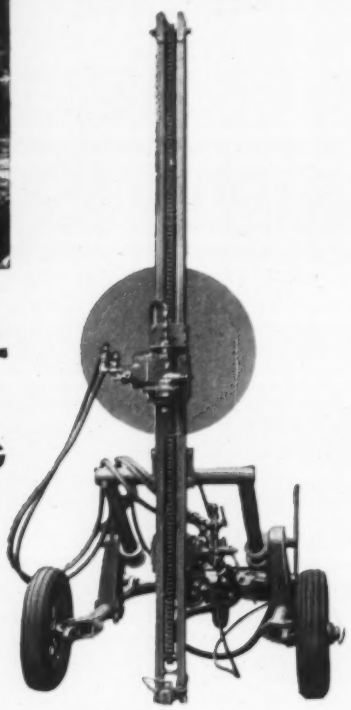
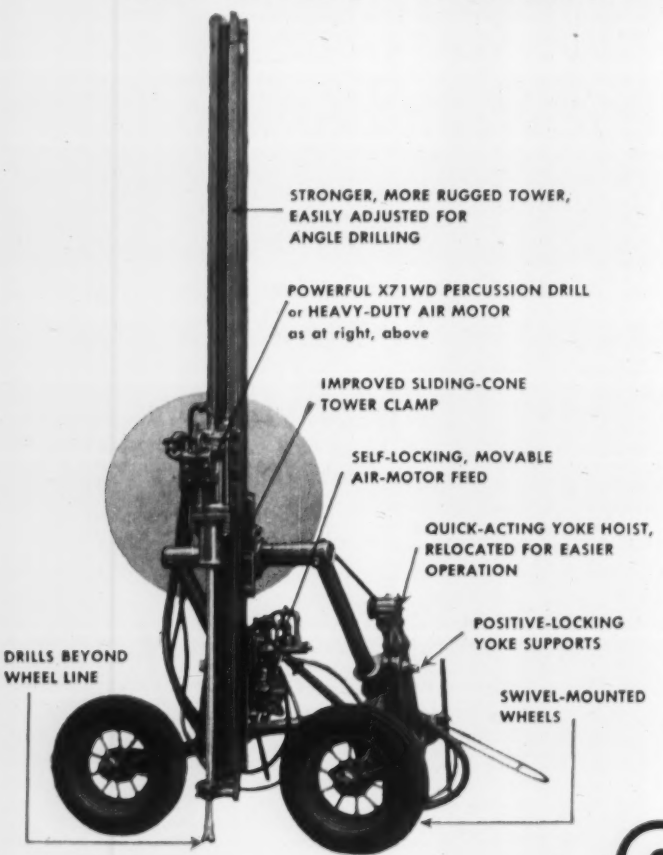
# NEW FM-4 WAGON DRILL

## now available for

## PERCUSSION or ROTARY DRILLING



FM-4 Wagon Drill with air motor for rotary drilling.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POWERFUL X71WD PERCUSSION DRILL or HEAVY-DUTY AIR MOTOR as at right, above
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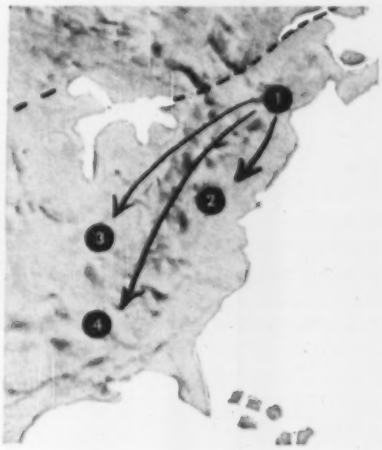



**Cost-conscious F. H. McGraw & Co., Hartford, Conn., engineering-construction firm, meets its payrolls at distant job sites electronically. In picture, Thomas Williams (right) data processing director, watches Clifford S. Strike, president of F. H. McGraw, push a button in Hartford (1) so that paychecks will come rolling out of machines at construction sites in Brewton, Ala. (2), Lakehurst, N. J. (3) and Cresaps, W. Va. (4). It is . . .**

# A Cost System That Pays Off Fast

The eagle's scream to F. H. McGraw & Co. construction workers this week will be a muted electronic clacking signifying that automation has taken on another job in the construction industry.

The Hartford, Conn. contracting and engineering firm joined teletypwriters, computers and electronic circuitry into a single team that will compute and deliver weekly pay checks from its home office to workers on three separate jobs along the East Coast.

The only thing it cannot do is sign the checks. This still must be done by the payroll man on the job site.

• **Other duty**—But this electronic payroll clerk also works for the company to keep a daily cost control check on each construction job for which it prepares checks.

This is the first time a construction company has combined integrated data processing with teletype transmission of payroll information. The McGraw system ties the home office to job sites at Brewton, Ala. and Cresaps, W. Va. A third point in the network will be established shortly at Lakehurst, N. J., when the company starts work at the Naval installation there.

• **How it works**—The system is described by McGraw officials as "relatively simple." The payroll clerk at a particular job assembles pertinent information on each employee—badge number, social security, required deductions, name, number of exemptions and hourly wage rate in the particular job performed.

The information, along with an account number representing a job classification, is punched into a paper tape. The tape is then fed into a teletypewriter which transmits the information from the construction site to the home office at Hartford.

There a receiving machine accepts the information in perforated tape form. A monitoring machine is also at work receiving the same information, but instead of punching a tape it types out the data in regular printed "hard" copy form. This readable form provides a means of checking errors and also is used later in the bookkeeping operation.

• **Punch cards used**—The perforated tape is removed from the receiving machine and is fed into an electronic punch machine which transfers the data to a punch card.

Each worker, at the end of a work week, will have a file of cards equal in number to the days he has worked. If he worked five days he will have five punched cards. If he worked only three days, he will have only three punched cards. The information from the job site is transmitted to the home office each work day.

The cards are then inserted into a small-sized electronic computer which makes all necessary wage computations and finally produces a summary punch card.

• **Paychecks arrive**—This card is inserted into a card-to-tape converter. The machine is turned on at the job, and the checks with accompanying record stubs pour out at an average rate of five a minute.

The system is used to pay 200 men at the Brewton job, and 250 men at the Cresaps site. Approximately 150 men will be paid with the machine at Lakehurst.

The electronic payroll method was adopted by the McGraw Company as a means of cutting costs in an era of keen competition, labor shortages and rising labor costs.

The payroll represents a costly and laborious operation. Before the new system was introduced, the company hired from 5 to 50 persons to handle the payroll, the number varying with the size of the construction project.

• **Help scarce**—Many times it is difficult for the company to obtain the qualified clerical help necessary for the payroll operation, particularly if the firm has a job in a remote area. The new method eliminates this problem.

Clifford S. Strike, president of the company, said the increasingly high cost of materials is hard to combat. "As we are a big firm, handling large projects, we are able to buy in volume at substantial discounts which represent rock bottom materials prices. But the rock bottom price is always higher as costs increase across the board."

He said that as a union company, labor also comes at a fixed price, "which therefore makes it necessary for a company to effect savings in such indirect costs as purchasing, expediting, time keeping and administration. Automation in the payroll operation seemed a reasonable method of cutting costs."

• **Cost control**—The account number on the punched card is the key to cost control. Each type of work on a job is given a number. As each worker's pay is based on the job he does, the com-

pany automatically has a record of labor costs.

If, for example, the company wants to check the labor cost of concrete work, the sorting machine in the home office is merely set to flip out the cards of the employees who have been working with concrete. Turned on, the machine sorts out only those particular cards and from that point it is a matter of simple addition in order to arrive at the figure for the labor cost.

# Florida Votes School Funds

## Legislature also acts on pollution control programs; state will pay utility relocation costs on road net

The Florida State Legislature, which has now adjourned, approved a two year building program totaling approximately $65 million, provided that the Highway Department pay the costs of relocating utilities from interstate highway rights-of-way and set up stream and air pollution prevention programs. It rejected, however, a proposal that the state distribute $30 million to counties on the basis of need for the purchase of highway rights-of-way.

The single largest program approved was the creation of a $23 million school construction fund which will be matched by the state's counties.

In addition, the legislature provided $8 million for construction of a new state university at Tampa and $5.1 million for nuclear research facilities at both the University of Florida and Florida State University. Of the latter total, the University of Florida's college of engineering will receive $2.8 million and Florida State University the remaining $2.3 million.

• **Tax measures**—One phase of the $120 million tax bill enacted will have a heavy impact on contractors. The state's 3% sales tax law was amended to levy the 3% charge on the first $1,000 of heavy machinery cost. Previously, the levy was imposed on only the first $300.

A 1% tax also was placed on motor vehicles. The levies are expected to yield $12 million annually.

The legislature also passed a new mechanics' lien law to replace one recently declared unconstitutional by the State Supreme Court. Under the new act, a general contractor must obtain a payment and performance bond until all subcontractors and suppliers have been paid. In place of such a bond, an owner can retain 20% of the contract price.

The previous law provided that if the contractor failed to pay his suppliers or subcontractors, the owner was responsible for payment.

• **Labor legislation**—Florida's first step into the field of labor-management relations was taken with the setting up of a conciliation and mediation service aimed at providing a means of settling labor disputes or strikes. Under the bill, the conciliator would be named by the governor and work under his supervision.

The legislature also raised unemployment benefits from the present rate of $26 to $30 a week for a payment period of 16 weeks.

The problem of air and stream pollution came in for special attention. One act sets up an Air Pollution Commission within the State Board of Health. It will be composed of nine members representing the Health Board, the State Department of Agriculture, the Florida Industrial Commission, two professional engineers, two representatives of industry and two representatives of the public.

A companion bill appropriated $65,000 for the commission to assure its operation for two years. The measure resulted from complaints of air pollution, some of which have lead to lawsuits. Most of the air pollution charges have been directed at the phosphate and paper and pulp industries.

• **Stream sanitation**—Two measures are aimed at preventing stream pollution. The responsibility is placed on the Department of Health's Bureau of Sanitary Engineering. A $75,000 appropriation will be used for the construction of a laboratory, perhaps at Winter Haven.

The second stream sanitation measure gives the Board of Health authority to seek injunctions from circuit judges to halt alleged violations.

In another field, the lawmakers created a Water Resources Division within the State Board of Conservation. As most of the state's water is obtained from underground sources, the new division is given the authority to assist in the conservation and storage of water. It also will act to prevent over pumping of water, a factor that has caused serious drawdowns of underground water supplies.

To make the Water Resources Division fully effective, $135,000 was appropriated for its work.

• **Purchasing commission**—The legislature also created a State Purchasing Commission consisting of the State Cabinet, which in Florida is an elected body rather than an appointed group.

The Purchasing Commission will be responsible for the compilation and dissemination of information concerning the purchase of equipment and commodities by all state agencies.

# Statistics Squabble Takes New Turn

The Budget Bureau has recalled its decision to consolidate construction statistics in the Labor Dept. (ENR June 13, p. 23).

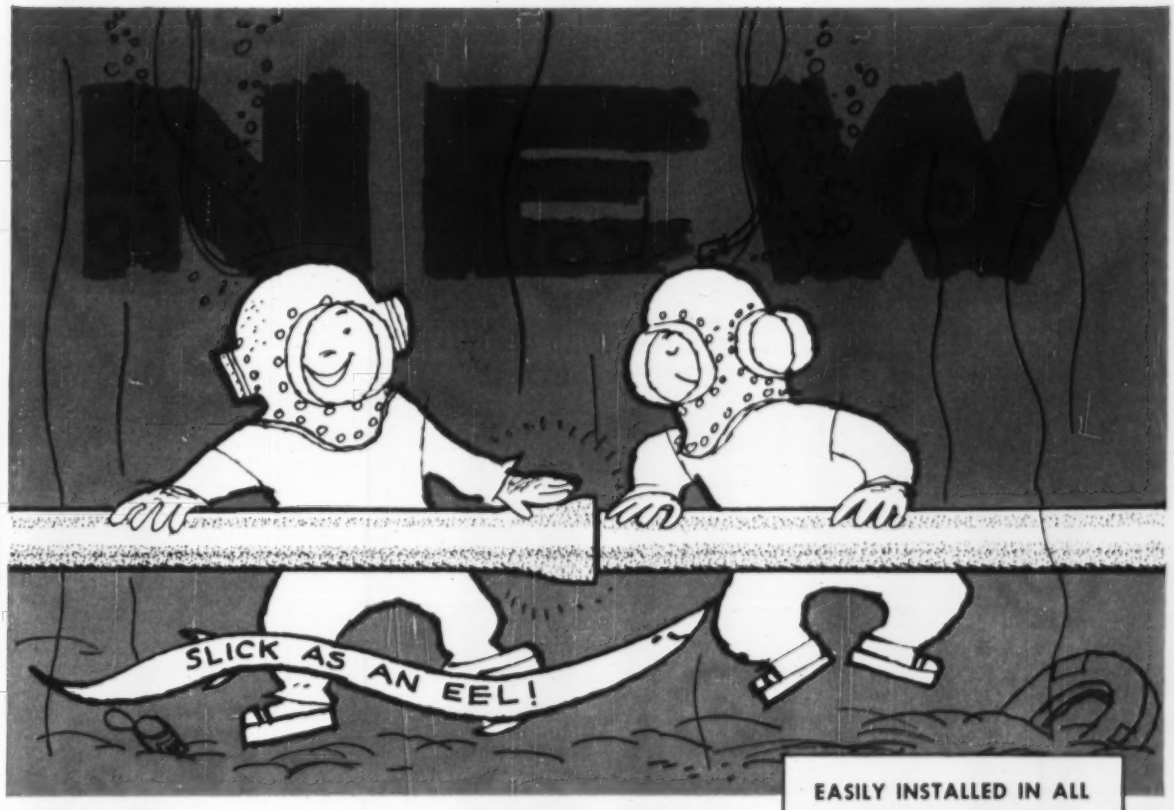
That was the substance of what industry representatives learned last week when they went to a Washington meeting where Budget was supposed to present its plan. At the last minute, the scheduled appearance of the bureau's spokesman—Dr. Raymond Bowman—was cancelled, and the industry people had to get a story of the abortive proposal second hand.

In the absence of Dr. Bowman, the construction representatives at the meeting rebuffed the Budget Bureau by voting their consensus that "responsibility for a coordinated program on construction statistics be placed in the Department of Commerce. The industry people amplified their "sense of the meeting" statement to declare further that "there be no lessening of the program or accuracy of the program which now exists but rather an expansion of the program and improvement in the accuracy."

As things stand now, the problem of unifying construction statistics is right back where it was two years ago. The Budget Bureau has been wrestling with the question even longer.

The issue boiled to the surface in a big way three weeks ago when Budget Director Precival F. Brundage sent letters to the Secretaries of Commerce and Labor telling them that operations were to be centralized in the Bureau of Labor statistics, with all field work to be subcontracted to the Census Bureau in the Commerce Dept. A strongly worded protest from Commerce Secretary Sinclair Weeks, expressing both surprise and vigorous opposition caused the Budget Director to pull up short on his plan.

Chances are better than even that

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Iowa Valve Company, Oskaloosa, Iowa

Mr. Weeks' protest has effectively blocked transfer of the Commerce construction statistics branch to Labor. But the problem of unification still remains.

Everybody—in government and out—agrees that responsibility for construction statistics should be centralized in one place. Industry people at last week's Washington meeting, sponsored by the subcommittee on construction statistics of the U.S. Chamber of Commerce, expressed strong hope that the recent flareup would fire the Commerce Dept. with more interest in its statistical branch.

Commerce already is showing increased fervor. It fought for enough money to keep the statistics going in fiscal 1958 appropriations.

Actually, Commerce has a plan of its own that could provide an eventual home for consolidated construction statistics. The department is working on an order that will set up an Office of Construction Statistics, separate from the Building Materials and Construction Division where the statistical operation now is lodged. Department officials declare that this office, with the full and firm support of top Commerce personnel, will push hard for expansion and development of the statistical programs presently assigned to it. Further, they state, the department will vigorously support future growth of the office to take care of any additional responsibilities given to commerce, with adequate field organization in the Census Bureau to compile and interpret field data.

This kind of setup probably would appeal to construction industry leaders. Those who attended last week's meeting agreed that the present BLS operation excells that of Commerce in size and capacity and that BLS statistics are vitally important to the industry. This, in fact, was the reason for adding to the resolution the protective clause that the scope and quality of the current overall program be maintained and progressively enlarged and improved.

Construction representatives at the Washington meeting expressed full faith and confidence in the present BLS staff and operation. But they feared that the time might come when other people would be in charge and the housing of industry statistics in the Labor Dept. would prove unfortunate. Commerce, they agreed, is the logical and devisable place to put construction statistics. They registered their judgement by 14 votes for the resolution, with none against and only two or three abstaining.

Budget officials say the decision to consolidate construction statistics in BLS had no connection with the study now being completed for the bureau by economics professor Elmer Bratt of Lehigh University. Prof. Bratt's report now being written for delivery about the end of June, is addressed to the technical content of an overall program of construction statistics, including such things as where data should be obtained and how they should be processed. It does not go into governmental organization of the statistical operation.

## Line-of-Duty Criticism by Officials Held Libel-free

Public officials have a libel-free right to criticize a public construction project when the criticism is made in the course of official duty, according to a Philadelphia County Court.

Judge Vincent A. Carroll last week dismissed a $1 million libel suit brought by Joseph W. Montgomery, of Montgomery Construction Co., against city architect George I. Lovatt, Jr. and William T. Gennetti, a deputy commissioner of public property.

Mr. Montgomery filed suit after the city officials said that a Philadelphia police station built by the Montgomery firm contained serious structural defects which led the city to refuse its acceptance. The officials' report was published in the newspapers.

Mr. Montgomery charged in his suit that the two city officials, acting for and on behalf of the city, wilfully and deliberately made false, defamatory statements that resulted in injury to his business.

Judge Carroll, ruling on the preliminary objection and demurrer brought by the city against Mr. Montgomery's complaint, upheld the city's argument that the city and its officials are immune to liability for libelous and slanderous statements made in the course of duty.

## Kaiser Steel Expansion Pegged to Growth of West

The seven far western states will be consuming nearly 10 million tons of steel a year by 1965. That's the prediction made by Edgar F. Kaiser, vice president of Kaiser Steel Corp.

Kaiser Steel's current $194 million expansion program is "aimed at retaining a reasonable share of this growing market," Mr. Kaiser told stockholders.

The program will nearly double the company's capacity, from 1,536,000 ingot tons per year to approximately 3 million tons. Upon completion of the program in 1958, Kaiser Steel will be the largest steel producer west of the Mississippi River, Mr. Kaiser stated.

## Contractor Wins Decision On Bid Bond Forfeiture

Charles L. Harney, San Francisco contractor, won a court decision over the State Department of Public Works in a $173,000 dispute over a bond forfeiture.

Mr. Harney in November 1955, offered a bid of $1,730,560 for state highway construction in Alameda County. After the bids were opened and Harney was found to be the low bidder, the company said it intended to bid $1,950,734.

The Department of Public Works ordered the company's 10% bond forfeited when Mr. Harney refused to do the work at the lower price.

During a trial before Sacramento County Superior Judge Grover W. Bedeau, the company said the wrong bid was caused by a clerical error and it was not an error of judgment.

Judge Bedeau upheld this contention and ordered the bond returned.

# Chicago Bond Issues

### Voters approve 23 issues for public works program

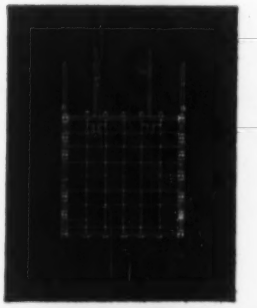
At a judicial election this month, public works-minded voters of Chicago and Cook County approved 23 bond issues totaling almost $208 million.

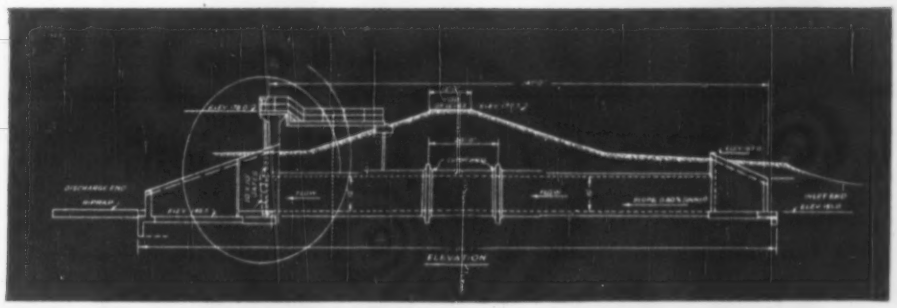
A series of bond issues, totaling $113 million, will finance a three year program of public works (ENR April 25, p. 45). This program includes sewers, street lighting, refuse disposal, bridges, viaducts, municipal buildings, airport work, slum clearance, playgrounds, docks and piers, superhighways, and some equipment purchases.

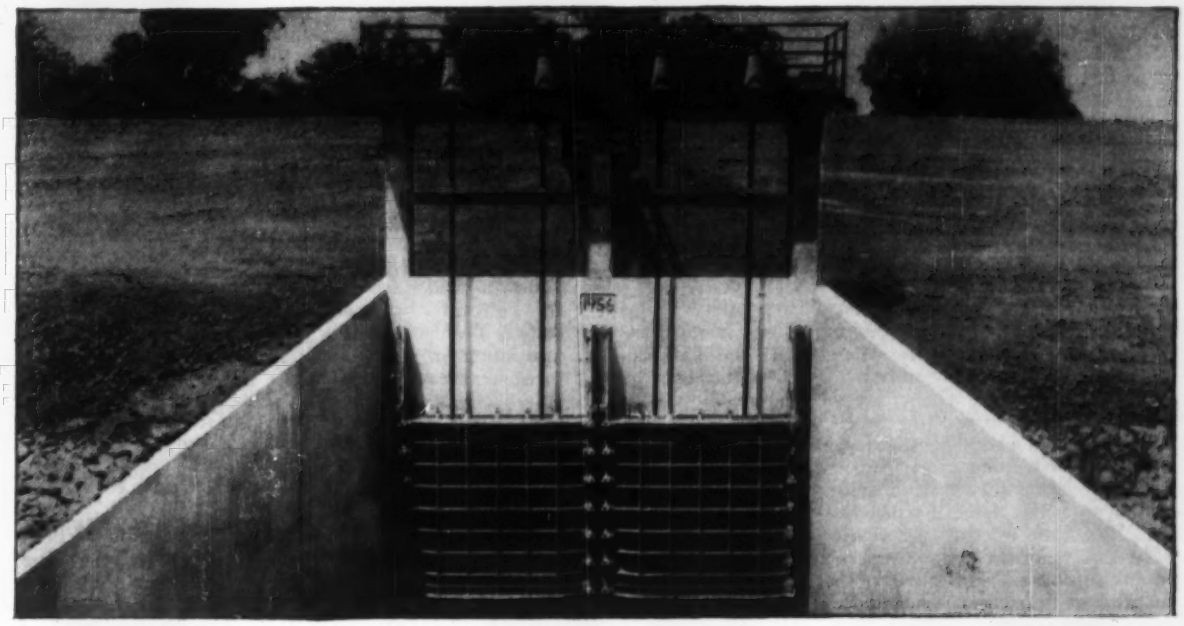
In addition to this, voters approved Board of Education bond issues totaling $50 million for land acquisition and school construction. Of this amount, about $30 million is earmarked for elementary schools, $10 million for high schools and $10 million for land acquisition.

Bonds totaling $30 million for Cook County improvements were approved at the same election. Two of the largest items were $13 million for work at the Cook County Hospital and $10 million for a home for the aged.

Chicago Park District bond issues approved included $9 million for park improvements and $6 million for boulevards and bridges.







# RODNEY HUNT SLUICE GATES
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Water control engineering problems are unique in their profound effect upon human lives, health and prosperity.

In this installation, Rodney Hunt engineering and sluice gate design protect more than 80 square miles of farm land. The gates, when open, allow normal drainage to the Bayou River, and when closed prevent flooding as the river goes to flood stage.

The two Rodney Hunt 10-foot by 10-foot cast iron bronze-mounted sluice gates were designed for maximum opening with minimum structure. The installation is unique because inherently rigid flange frame sluice gates with wall thimbles were installed with attaching studs projecting to the front of the frame. This eliminated the need for excessive side clearance and saved on structural costs. Rodney Hunt also supplied precision-built interconnecting floor stands with twin stems on each gate for balanced, smooth operation.

Projects of such importance demand skilled engineering as well as unquestioned product dependability.

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Water Control Equipment Division

85 Lake Street, Orange, Massachusetts, U.S.A.

RODNEY HUNT®

SERVING WATER CONTROL ENGINEERS WITH SLUICE GATES AND ENGINEERING

# Homebuilders Seek Wage Solution

## Sacramento group pays AGC rates under protest as bargaining continues in other parts of industry

Wage negotiations in the construction industry have continued this month to produce wage gains falling, for the most part, between 15 and 25 cents an hour, and the list of long-term contracts is still increasing. A number of strikes have been settled, but others are threatened, including one against most of the major cement companies. And on the West Coast, homebuilders have been forced to capitulate, at least temporarily, to contract terms negotiated by Associated General Contractors.

• **Homebuilders**—The plight of many homebuilders is illustrated by the situation that exists in Sacramento, where builders have agreed, under protest, to give an 18 cent hourly wage increase to laborers and a 22½ cent boost to carpenters to end a homebuilding shutdown of several weeks standing.

The capitulation was made pending a decision from the National Labor Relations Board on whether the homebuilders can negotiate their own labor contracts this year.

In previous years, the homebuilders have abided by contracts concluded with the unions by the AGC. But the AGC contracts this year, calling for an unprecedented five year agreement of an 18 cent boost a year for laborers and a 22½ cent increase for carpenters this year with another 15 cent hike next year, were protested by homebuilders as "fantastic" and "completely out of line." To the homebuilders, the slump in homebuilding construction, the tight money market and current unemployment among building trades made the contracts unjustified.

Both the carpenters and laborers had refused to negotiate separately with the homebuilders, and picket lines established by laborers were respected by other craftsmen.

In Philadelphia, however, the Home Builders Association has settled with all the trades except iron workers and operating engineers on the basis of 30 cents over a three year period (12½, 10, 7½). But association members are still tied to the carpenter rates negotiated by the AGC.

A more elastic three year contract has been reached by Buffalo, N. Y., homebuilders and carpenters. It grants a 21½ cent increase now, 20 cents next year and 15 cents the third year, the latter to be adjusted up or down to restore the present 26 cent differential between homebuilding and the higher commercial rates.

• **Strikes**—In Rhode Island, 750 carpenters have returned to work after a five week strike against the AGC. New three year contract grants a 5 cent wage boost (17½, 17½, 20) with 2½ cents of the final increase being added to the welfare fund. Side effect of the contract is to boost welfare payments to road and bridge carpenters by 2½ cents. Those carpenters had settled earlier with the Road Builders Association for 60 cents plus whatever fringe benefits the AGC would grant.

Meanwhile, painters have ended a month-long strike in Niagara Falls, N. Y., with a one year contract that grants a 25 cent wage boost. But elsewhere a number of trades were out on strike, among them these: carpenters in five New Jersey counties against the Building Contractors Association of New Jersey; carpenters in three central Ohio counties against the North Central Ohio Builders Association; teamsters in Cincinnati; iron workers in Tulsa; and cement masons and plasterers in San Diego.

Amid these developments, Felix Jones, head of the United cement, Lime and Gypsum Workers International Union, warned that a strike against most major cement producers is inevitable unless the companies settle down to "serious" bargaining. In addition to various wage structure, overtime pay and vacation reforms, the union is seeking a 10 cent basic rate increase, a union shop and a limitation on the right to contract out work normally performed by members of the union. According to Mr. Jones, current offers would reflect a net wage increase of only 2 cents after compensation for recent increases in the cost of living.

• **Settlements**—Out of current negotiations, however, has come a host of peaceful settlements.

Of these, two of the Electrical workers' contracts contain some interesting provisions:

• Under the Louisville contract, when five or more journeymen electrical workers are employed on a job, every fifth journeyman shall be 55 years of age or older, if available. The contract grants a 15 cent wage boost.

• The new contract for electrical workers in San Francisco provides for a five cent hourly employer contribution for an electrical industry fund to be used to promote the industry. Fund will be administered by a joint board. Contract is for two years and grants a 53½ cent wage boost—15 cents now, 26 cents Dec. 1 and 12½ next June, the latter to be used for wages or health and welfare.

Most of the Cincinnati trades—15 in all, so far—have settled under a 15 cent pattern. Teamsters in the western Washington construction industry have won a 34 cent package increase for the next six months—17 cents now, 7 cents in January and 10 cents for pensions effective Aug. 1. Bricklayers in Mansfield, Ohio, have signed a two year pact with the North Central Ohio Builders association for an overall wage increase of 30 cents.

# Boycott Charge Filed

## Burt Co. seeks NLRB aid in sheet metal dispute

Burt Manufacturing Co. of Akron, Ohio, has filed an unfair labor practice charge with the National Labor Relations Board against the Sheet Metal Workers' International Association, several of its local unions and 17 of its officers and business agents. It charges that the union has engaged in an illegal secondary boycott by refusing to install ventilating equipment manufactured at the company's Akron plant, which is organized by the United Steelworkers of America.

The boycott, which is another manifestation of the jurisdictional conflict between craft and industrial unions, came to a head when construction was delayed last year on the new Chrysler Corp. stamping plant at Twinsburg, Ohio, for which the Burt firm was to supply $17,000 worth of roof ventilators. When the sheet metal subcontractor could not obtain union workers to erect the ventilators or to handle other sheet metal installations, Chrysler "regretfully" canceled the Burt contract in order to catch up with the construction timetable on the $85 million plant.

At its mid-winter meeting in January, the AFL-CIO Executive Council appointed a special committee headed by

President George Meany to investigate the dispute. The committee's final decision was in favor of the sheet metal workers and the gist of the ruling was that the sheet metal workers were violating the federation's constitutional provisions against raiding (ENR April 25, p. 137).

According to F. C. Sawyer, executive vice president of the Burt company, the sheet metal workers have failed to adhere to the committee's decision.

# Labor Peace Promoted

### Union-contractor pacts carry a non-strike pledge

Two local areas look forward to labor peace in the construction area as a result of new agreements announced earlier this month.

In Alton, Ill., and Pittsburgh, Pa., the building trades unions and their contractors have mutually agreed upon a program to eliminate jurisdictional work stoppages. Each pact represents another milestone in the industry's sober search for harmony and stability in labor relations.

The Alton approach, broader in scope than the Pittsburgh one, contains three basic committments from labor:

- To conform to the national plan for the settlement of jurisdictional disputes, namely the National Joint Board procedure which requires that work be continued pending a board decision on a dispute.
- To eliminate "featherbedding, slowdowns, wildcat strikes" and other activities "not conducive to the best interests of labor, management and owner relationships".
- To give "a fair day's work for a fair day's pay".

Management, in return, has agreed to follow the national procedure for settling jurisdictional disputes, and to hold pre-construction meetings with labor.

Participating in the agreement are the Alton Building Trades Council, the Southern Illinois Builders Association and the Construction Employers Council.

Under the Pittsburgh Building Trades Council agreement with the Master Builders Association of Western Pennsylvania, the unions pledge adherence to the National Joint Board procedure—which means compliance with board decisions and no jurisdictional strikes.

## Right-to-Work Ordinance Enacted at County Level

Cornelius J. Haggerty, secretary-treasurer of the California State Federation of Labor, has announced that the federation will wage a legal fight against a right-to-work ordinance adopted by the San Benito County Board of Supervisors.

The second of its kind on the county level, the law is identical to one adopted earlier this year by Tehama County to outlaw the union shop.

Laws that prohibit making union membership a condition of employment are commonly called right-to-work laws and represent the type of punitive legislation that organized labor, including the building trades, fears as a result of current investigations into labor activities. Eighteen such laws now exist at the state level under a Taft-Hartley provision (Section 14(b) that allows states to ban use of union shop agreements. There is presently before Congress as an amendment to the civil rights bill a proposed right-to-work law at the federal level.

California is the first of the states to adopt the restrictive legislation at the local level. A right-to-work ordinance passed by the City of Palm Springs is now on its way to review by the U. S. Supreme Court. The key legal question is whether the local option granted to the states by the Taft-Hartley Act extends to political subdivisions of the states.

## Union Organizers Test Restrictive Ordinance

The validity of a Savannah ordinance that bans out-of-town union organizers now is being tested in the Georgia courts.

Passed in 1946, the ordinance requires the licensing of union organizers and imposes a $100 license fee and a $100 investigation fee; only those who have been residents of Savannah for 12 months are eligible for a license, and, in granting licenses, city commissioners are directed to consider "the additional police force made necessary by granting the licenses and the effect such union or other organizations will have on the peace, quiet, morale and welfare" of the city.

A union attorney who represents two organizers penalized by the ordinance contends it violates the constitutional rights of freedom of speech and of peaceful assembly, that it places an unlawful burden on interstate commerce, and that it is discriminatory.

The ordinance is similar to many that have been adopted recently in southern communities (ENR Oct. 4, 1956, p. 147) and that have been loudly condemned by members of the building trades unions. Because of the attitude they reflect, the AFL-CIO has had considerable difficulty with its organizing drive in the South.

# A Spin-off From ESA

### Engineering employees are forming new union

A new national collective bargaining organization is being formed for engineering employees. It will be known as Engineers and Scientists Guild (ESG).

Preliminary steps for formation of the new organization were taken earlier this month in Los Angeles, following a convention decision of Engineers and Scientists of America to make itself representative of professional employees only (ENR June 13, p. 179).

Ten local engineering employee associations—all present or former members of ESA—are expected to join ESG. They are reported to represent more than 20,000 "engineers, architects, scientists, designers, draftsmen and other technical employees."

ESG chairman Charles Hall attributes the birth of ESG primarily to ESA's trend toward professionalism and its de-emphasis of collective bargaining.

Among the basic "principles" adopted by the representatives who met in Los Angeles to form ESG are these:

- Modern industrial society requires "that members of the engineering community organize in economic association after the manner of the other great professions and crafts."
- Through collective bargaining, members of the engineering community "can advance themselves economically and give rightful dignity to their occupational pursuits."
- Proper representation requires that collective bargaining organizations of engineering employees remain "apart from those representing other types of employees or organizations rendered ineffective by management influence."

Among organizations invited to join ESG are those representing employees of Pacific Gas and Electric, Chicago and North Western and Great Northern Railways, the City and County of Los Angeles and the Los Angeles Department of Water and Power.

(*Labor continued on page 154*)

## Federal Supremacy

### High court limits state action in right-to-work and hot-cargo disputes

Two decisions favorable to building trades unions—one involving right-to-work laws and the other hot-cargo clauses—were handed down this month by the U.S. Supreme Court. They state, in effect, that state courts cannot enforce a right-to-work law or prevent compliance with a hot-cargo clause where the union activity that gave rise to the court action affects interstate commerce. Both rulings rest on the doctrine of federal supremacy.

The right-to-work case stemmed from union picketing of Farnsworth & Chambers Co., Inc., contractor at Tennessee Valley Authority's Gallatin steam plant, to protest employment of nonunion workers (ENR May 2, p. 118). The State Supreme Court upheld an injunction against the electrical workers union on the theory that the Taft-Hartley Act does not "so exclusively pre-empt" the field of labor management relations as to deny a state court the right to enforce its right-to-work law. An appeal was taken by the Nashville Building Trades Council and Local 429 of IBEW. The U.S. Supreme Court upheld the union, ruling that jurisdiction over labor disputes touching interstate commerce is granted exclusively to the National Labor Relations Board and federal courts.

In the hot-cargo case, the approach was similar. During a 1952 labor dispute, members of the ironworkers union had picketed two Nashville plants of Kerrigan Iron Works. Teamsters honored the hot-cargo clauses in their labor contracts and trucking concerns quit handling Kerrigan freight. The Tennessee courts ruled that the truckers had to service Kerrigan, and ordered the teamsters not to interfere. In reversing the decision, the U.S. Supreme Court held that the Interstate Commerce Commission and not state courts has jurisdiction over hot-cargo disputes affecting interstate commerce.

## State Penalizes Workers For Safety Violations

An unusual and drastic step has been taken by the Florida Industrial Commission to enforce its safety regulations.

Under the new procedure, workers will be penalized 25% of their allowable workmen's compensation (exclusive of medical benefits) if they are injured in an accident that involves violation of the commission's safety regulations. And employers may be fined up to $100 a day, or $100 for each offense, for failure to comply with the regulations.

The action was taken as a result of an elevator crash at Duval County Courthouse in Jacksonville. Seven construction workers were killed, and many others were seriously injured.

## Welfare Fund Control

### AFL-CIO asks coverage of employer programs

AFL-CIO President George Meany last week asked Congress to scrap the belief that "management can do no wrong" and demanded on behalf of the federation public disclosure legislation at the federal level for all employee health, welfare and pension plans, whether administered by management, by labor or jointly by management and labor.

To support his demand, Mr. Meany made these points:

- The overwhelming majority of health, welfare and pension plans are administered unilaterally by management with almost no legal regulation.
- The public at large and employees in particular have a substantial interest in the integrity of all plans.
- Serious abuses—most notably in transactions with private insurance agencies and interests—have appeared in all types of plans.
- Although no one has a right to immunity from accountability for his stewardship, there has been no positive recognition on the part of management or the insurance industry to clean their own houses.

The arguments were made on June 11 in testimony before the Subcommittee on Welfare and Pension Plan Legislation of the Senate Committee on Labor and Public Welfare.

Specifically, Mr. Meany urged:

1. Elimination, at the state level, of the requirement of mandatory insurance commissions where no agent or brokerage services are performed.

2. A change in state laws to require more service to the public interest and less to private interests by state insurance commissions and departments.

3. Annual reports on fund administration to a federal agency.

The bill endorsed by the AFL-CIO, with one exception is S.1122—the Douglas-Murray-Ives bill. Exception noted by Mr. Meany is that responsibility for supervising health, welfare and pension fund administration be delegated to the U. S. Labor Department and not to the Securities and Exchange Commission.

# OFFICIAL PROPOSALS

Bids: July 9, 1957.

**New Jersey Turnpike Authority**

CONTRACT NO. N-74

Proposals are invited for Contract No. N-74 which involves grading, drainage, paving, lighting and other incidental work for the construction of Service Area EN, and certain miscellaneous construction in Service Area ES, both located along the Newark Bay-Hudson County Extension of the New Jersey Turnpike, in Jersey City, Hudson County, New Jersey.

The principal items of work include:

| | |
|---|---|
| Borrow Excavation | 1,500 Cu. Yds. |
| Storm Drains, Reinforced Concrete Pipe | 600 Lin. Ft. |
| Drop Inlets | 16 Units |
| Bituminous Concrete Pavements | 11,000 Sq. Yds. |
| Portland Cement Concrete Pavement | 1,200 Sq. Yds. |
| 6-Inch Concrete Sidewalk | 200 Sq. Yds. |
| Aluminum Railing | 100 Lin. Ft. |
| Setting Granite Curbs | 4,600 Lin. Ft. |
| 6-Inch Topsoiling | 10,000 Sq. Yds. |
| 3-Inch Underground Asbestos-Cement Electrical Conduit | 2,000 Lin. Ft. |
| 3-Inch Underground Galvanized Wrought Iron Electrical Conduit | 800 Lin. Ft. |
| Series Lighting Conductor | 5,600 Lin. Ft. |
| Lighting Standards | 20 Units |

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Daylight Saving Time on the morning of July 9, 1957, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours on or after June 17, 1957, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 99 Church Street, New York 7, New York. Contract documents will be furnished upon payment of Ten Dollars ($10.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

Bids: July 8, 1957.

### Construction of Sanitary Sewers

Sealed bids will be received until 11:00 A.M., EST, on July 8, 1957 in the office of the City Commission of Fort Lauderdale, Florida, for the construction of sanitary sewers in Area "B" consisting of approximately 25,900 linear feet of gravity sewers and appurtenances. This contract to be known as "Contract A", Improvement 997.

Bidding blanks may be obtained from the office of the City Engineer. Plans, specifications, and contract documents are on file in the office of the City Engineer.

A deposit of $25.00 for plans and specifications, and of $15.00 for each additional set of plans or specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within 10 days of the opening of bids.

A certified check, cashier's check of bank officer's check, for 2% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the Bidder. This check shall be retained by the payee as liquidated damages should the Bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the Proposal, in the event the Proposal of the Bidder is accepted.

The City Commission reserves the right to reject any or all bids.

William J. Veeder
City Manager

# OFFICIAL PROPOSALS

*RATE:* The rate for Official Proposal advertising is $2.10 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

*CLOSING DATE:* Friday 10:30 A.M. for issue dated the following Thursday.

*SEND COPY TO:* Official Proposal Division, Engineering News-Record, P.O. Box 12, New York 36, N. Y.

Bids: 6/27/57

## Power Authority of the State of New York

BARNHART-PLATTSBURGH TRANSMISSION PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF 13,800 VOLT STATIC CAPACITORS
SPECIFICATION NO. PA-6-32
CONTRACT NO. TP 10

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of four (4) 6000 KVAR 13,800 volt static capacitor banks and associated equipment and delivery thereof, f. o. b. cars at destination until 10:30 A. M. Eastern Daylight Saving Time on the 27th day of June, 1957, at the Authority's office 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for the capacitors and associated equipment and services in accordance with the bidding schedule. Installation of the capacitors and associated equipment will be done by Others, but services of erecting engineers shall be provided by the manufacturer when and if required. Delivery of the capacitors and associated equipment will be required May 1, 1958.

Plans, Specifications and Proposal Forms may be obtained only from the Power Authority of the State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) for initial set of Contract Documents and Five Dollars ($5.00) for each additional set, no part of which will be refunded. Two sets must be returned with each bid.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, for the inspection by prospective bidders.

Bids will not be restricted to American manufacturers.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than ten (10) percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
PA-6-32 GENERAL MANAGER

Bids: July 2, 1957.

## Contract 446
## Unwatering and Cleaning the Rondout-West Branch Tunnel of the Delaware Aqueduct

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time), on Tuesday, July 2, 1957, for Contract 446, for unwatering and cleaning the Rondout-West Branch tunnel of the Delaware aqueduct and for performing the work incidental to these operations. The work of this contract includes unwatering the tunnel and maintaining it in an unwatered condition until it has been cleaned and a final inspection made; moving pumps and other unwatering equipment owned by the City of New York from places of present storage, installation and use of such equipment and its subsequent removal and return to storage; furnishing, installation, operation and subsequent removal of a head frame, hoist, hoist house and appurtenant equipment; and furnishing, installation, use and removal of plant and equipment required for the cleaning of the tunnel, all as set forth in the specifications.

Pamphlets of the contract containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312 at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: July 8, 1957.

## Sewage Pumping Stations

Sealed proposals will be received until 11:00 A.M. EST, July 8, 1957, in the office of the City Commission of Fort Lauderdale, Florida for construction of Project No. 621 Area "B" Sewage Pumping Stations B1 and B2.

Bidding blanks may be obtained from the office of the City Engineer. Plans, Specifications, and Contract Documents are on file in the office of the City Engineer.

A deposit of $25.00 for Plans and Specifications, and of $15.00 for each additional set of plans or specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within 10 days of the opening of bids.

A certified check, cashier's check or bank officer's check, for 2% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the Bidder. This check shall be retained by the payee as liquidated damages should the Bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the Proposal, in the event the Proposal of the Bidder is accepted.

The City Commission reserves the right to reject any or all bids.

William J. Veeder
City Manager

Bids: June 27, 1957.

## New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on June 27, 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATION AT VARIOUS SITES ON INTERSTATE ROUTE 505, POLKVILLE TO TULLY CENTER, TOWNSHIPS OF CORTLANDVILLE, HOMER, PREBLE AND TULLY, CORTLAND AND ONONDAGA COUNTIES, WHICH CONSTITUTES CONTRACT NO. SPEC. FA-SM-97B.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. Wm. Robinson, District Engineer, New York State Department of Public Works, 333 East Washington Street, 7th Floor, Syracuse, New York.
(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $39,987.50.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reversed to reject any or all bids. JOHN W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: August 5, 1957

## Government of Iraq
## Electrification of Northern & Central Iraq
## Contract No. 16 Electrical Equipment

The Development Board and Ministry of Development of the Government of Iraq invite tenders from qualified firms for the supply and delivery of the Electrical Equipment for the Dibis and Baghdad Power Stations.

Full information regarding this tender can be obtained on and after June 3rd, 1957 from Embassy of Iraq, Washington, or Electrobel-Traction et Electricité, 1 Place du Trone, Brussels, Belgium.

All Tender Documents are to be submitted in English to the Ministry of Development, on or before 12 noon, local time on August 5th, 1957.

MINISTER OF DEVELOPMENT.

### U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4932) will be received at Albuquerque, New Mexico, until July 16, 1957, for furnishing labor and materials for Earthwork, Clearing and Structures for Irrigation Rehabilitation, Belen Unit 4, Middle Rio Grande Project, New Mexico. Location near Belen, New Mexico. Principal items are clearing of right-of-way and earthwork for cleaning about 10 miles of waterways; 39,000 cu. yds. of excavation; 260 cu. yds. of concrete in structures; furnish and install 142 slide gates; and other work. Completion time 195 days. For particulars, address Bureau of Reclamation, Albuquerque, New Mexico, P. O. Box 252 or Building 53, Denver Federal Center, Denver 2, Colorado.

W. A. Dexheimer, Commissioner.

Department of Commerce, Bureau of Public Roads, June 7, 1957. SEALED BIDS will be received at the office of the Regional Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., D.S.T., JULY 9, 1957, for Project 1A5, George Washington Memorial Parkway, Arlington County, Virginia. Roadway to connect Rosslyn Plaza with the Westbound Road of the Parkway with Steel Girder Bridge on Concrete Abutments over the Eastbound Road. The approximate quantities of the more important items are 24,850 cu. yd. Excavation and Borrow, 1,810 cu. yd. Concrete, 145,000 lb. Reinforcing Steel, 86 tons Structural Steel and 19,300 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above. H. J. Speiman, Regional Engineer.


**NOTICE TO ADVERTISERS**

The July 11 issue will close for press on July 3.

## OFFICIAL PROPOSALS

Bids: June 27, 1957.

### New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 27th day of June 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

| County | Contract No. | Name | Miles | Type | Deposit | Estimated Cost of Work |
|---|---|---|---|---|---|---|
| DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St.; Utica; N. Y. | | | | | | |
| Oneida | FAS8 57-7 | Champlin Road, Co. Rd. Project S-504 (1) | 1.17 | Asp. Conc., Ty. 1A = 1.16 Mi. Misc. Work = 0.01 Mi. | $29,000 Plans $10 | $534,000 |
| DISTRICT No. 3, Wm. Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y. | | | | | | |
| Onondaga (Rte. 11) | FARC 57-91 | Syracuse-Cicero, S.H. 5470 Project F-463(16) | 1.06 | Asphalt Concrete | $5,000 Plans $10 | 93,000 |
| Oswego | FATC 57-5 | City of Fulton: East-West Arterial Highway; FAC 56-7 Project U-624(4) | 0.99 | Traffic Signal System | $2,000 Plans $10 | 29,000 |
| Tompkins (Rte. 13 & 34) | FARC 57-89 | Ithaca-Newfield, S.H. 5214 Ithaca-West Danby, Pt. 1, S.H. 5379 and Ithaca, S.H. 454 Project F-506(7); F-560(4) | 4.47 | 9" Cem. Conc. Pavt. 24'-40' Wide = 0.78 Mi. Asp. Conc = 3.61 Mi. Misc. Work = 0.08 Mi. | $27,000 Plans $15 | 486,000 |
| DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester, N. Y. | | | | | | |
| Genesee (Rte. 5) | FARC 57-79 | Leroy-Caledonia, S.H. 5463 Project F-335(3) | 0.12 | Asp. Conc., Opt. = 0.08 Mi. Misc. Work = 0.04 Mi. R. C. Slab Br. 24' | $3,000 Plans $10 | 57,000 |
| Livingston (Rte. 256) | FARC 57-98 | Dansville-Conesus, Pts. 2 & 3, S.H. 1702 Project F-579(6) | 0.74 | Asphalt Concrete | $3,500 Plans $10 | 63,000 |
| Livingston (Rte. 258) | FARC 57-78 | Tuscarora-Groveland, Pt. 1, S.H. 1732 Project S-333(1) | 0.15 | Asp. Conc. = 0.13 Mi. Misc. Work = 0.02 Mi. Prestressed Conc. Unit Br. 94' | $11,000 Plans $10 | 200,000 |
| Monroe | LOSP 57-1P | Lake Ontario State Parkway Sect. "D" | 3.04 (1.16 Acc.) | Asphalt Concrete Hy. Sep. Rigid Frame 106.7' | $73,000 Plans $25 | 1,330,000 |
| Monroe | FATC 57-4 | City of Rochester: Inner Loop (South Ave. to George St.), FAC 56-3 Project U-231(10) | 0.32 | Traffic Signal System | $3,000 Plans $10 | 47,000 |
| Monroe (Rte. 252) | FARC 57-87 | Ballantyne Bridge-Pittsford, Pt. 1, S.H. 8443 Project F-600(6) | 2.27 | Asphalt Concrete | $11,000 Plans $10 | 202,000 |
| Monroe (Rte. 47) | FARC 57-97 R.C. 57-99 | Howard Road, S. H. 9350 Rapids-Rochester S.H. 401 Project S-511(1) | 2.82 | Asph. Conc. = 2.75 Mi. Asph. Conc., Ty. 2B = 0.02 Mi. Misc Work = 0.05 Mi. Remove & Replace Wearing Course on Exist. Br. | $15,000 Plans $10 | 266,000 |
| DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court St., Buffalo, N. Y. | | | | | | |
| Erie (Rte. 5) | T.C. 57-3 | Main Street, S.H. 69 | 2.80 | Traffic Signa lSystem | $6,000 Plans $10 | 102,000 |
| Erie & Niagara | T.C. 57-2 | City of Tonawanda-Seymour St., FAC 56-2 City of Tonawanda-Seymour St.-Barge Canal, FAC 55-12 City of North Tonawanda-Barge Canal-River Road, FAC 55-13 | 0.99 | Traffic Signa lSystem | $4,000 Plans $10 | 70,000 |
| Niagara (Rte. 18 & 62) | FARC 57-86 R.C. 57-90 | Niagara Falls-Buffalo, Pt. 2, S.H. 5164 Niagara Falls-Buffalo, Pt. 3, S.H. 5220 Project F-500(7) | 5.43 (0.12 Int.) | Asphalt Concrete | $30,000 Plans $10 | 585,000 |
| Erie & Niagara (Rte. 18) | FARC 57-96 | Niagara Falls-Buffalo, Pt. 4, S.H. 5172-5172A Niagara Falls-Buffalo, Pt. 3, S.H. 5220 Project F-500(8) | 2.33 | Asphalt Concrete | $15,000 Plans $10 | 265,000 |
| DISTRICT No. 6, J. H. Thomas, District Engineer, 30 West Main St., Hornell, N. Y. | | | | | | |
| Steuben (Rte. 36) | FARC 57-61 | Hornell-Arkport, S.H. 5254 Project F-619(4) | 2.71 | Asphalt Concrete | $12,000 Plans $10 | 214,000 |
| DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y. | | | | | | |
| Clinton (Rte. 190) | FARC 57-88 | The Forge-Ellenburg, Pt. 3, S.H. 8480 Project F-853(2) | 3.33 | Asphalt Concrete Alterations to Exist. 62' Plate Girder | $32,000 Plans $15 | 582,000 |
| Franklin (Rte. 3) | FASH 57-13 | Saranac Lake Village Project U-623(7) | 1.04 (0.04 Int.) | Asphalt Concrete Pre-stress Conc. Beam Br. 186' Pre-stress Conc. Ped. Overpass 120'. | $45,000 Plans $25 | 830,000 |
| Lewis (Rte. 12D & 26) | FARC 57-77 | Oneida County Line-Turin, S.H. 5327 Constableville-Lyons Falls, Pt. 1, S.H. 1600 Project F-330(6), F-415(11) | 0.70 | Asp. Conc., Ty. 1A = 0.65 Mi. Misc. Work = 0.05 Mi. 2 R.C. Box Brs. 35.6' and 31.5' | $12,000 Plans $15 | 220,000 |
| Jefferson (Rtes. 12 & 179) | FARC 57-94 | Watertown-Cyayton, Pt. 3, S.H. 5266 Project F-745(4) | 2.35 | Asphalt Concrete | $4,000 Plans $10 | 72,000 |
| Jefferson (Rte. 3) | FARC 57-95 | Oswego County Line-Aspinwall Corners, Pt. 1, S.H. 8418 Project F-539(9) | 4.15 | Asphalt Concrete, Ty. 1A | $7,000 Plans $10 | 127,000 |
| St. Lawrence (Rte. 420) | FARC 57-92 | Massena-Winthrop, Pt. 1, S.H. 5641 Project F-112(5) | 0.71 | Asphalt Concrete, Ty. 1A | $1,500 Plans $10 | 28,000 |
| DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y. | | | | | | |
| Columbia (Rte. 66) | R.C. 57-84 | Chatham-Chatham Center, Pts. 1 & 3, S.H. 1563 Chatham-Chatham Center, Pt. 2, S.H. 342 Chatham Center-Riders Mills, S.H. 827 | 3.88 | Roadside Development | $250 Plans $10 | 4,000 |
| Orange (Rte. 42) | R.C. 57-85 | Port Jervis-Sullivan County Line, Pt. 1, S.H. 412 | 1.60 | Roadside Development | $650 Plans $10 | 12,000 |
| DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick St., Binghamton, N. Y. | | | | | | |
| Delaware (Rte. 28 & 30) | FARC 57-80 R.C. 57-81 | Andes-Margaretville, S.H. 8017 Margaretville-Halcottsville, S.H. 5384 Project S-459(1) | 0.48 | 9" Cem. Conc. Pavt. 22'-40' Wide = 0.36 Mi. Asp. Conc., Opt = 0.09 Mi. Misc. Work = 0.03 Mi. | $10,000 Plans $10 | 190,000 |
| Schoharie (Rte. 20) | FARC 57-93 | Sharon-Sloansville, S.H. 8081 (Westbound Lane) Project F-33(3) | 7.34 | Asphalt Concrete | $24,000 Plans $10 | 445,000 |
| DISTRICT No. 10, M. E. Goul, District Engineer, Little East Neck Rd., Babylon, L. I., N. Y. | | | | | | |
| Bronx | FIBE 57-2 | Bruckner Expressway, Sect. I, Cont. 4C and 4D Project I-1086(5) | 1.99 | Demolition of Buildings | $14,000 Plans $10 | 252,000 |
| Nassau (Rte. 106) | R.C. 57-83 | Jericho-Oyster Bay, S.H. 9021 | 1.35 | Asphalt Concrete | $4,000 Plans $10 | 72,000 |
| Nassau (Rte. 107) | R.C. 57-82 | Massapequa-Glen Cove, S.H. 9017 | 3.22 | Asp. Conc. = 3.15 Mi. Misc. Work = 0.07 Mi. | $9,000 Plans $10 | 163,000 |

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

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## POSITIONS VACANT

**Gunite Superintendent—Wanted immediately.** Middle Atlantic States. State age, experience, availability, salary desired. P-4640, Engineering News-Record.

**City Engineer: Registered professional engineer** desired for City of approximately 18,000. Municipal experience desired, but not mandatory. Full details of education, experience and qualifications should be furnished. Contact **Mayor, Fremont, Nebraska.**

**Inspectors—Concrete, Soils & Asphalt, Lab &** Field. For Overseas Airbase Construction. Temperate Climate. Please send detailed resume. P-5257, Engineering News-Record.

**Civil Engineer with at least two years college** training not over 35. Must have military training completed and interested in the building construction business, starting in the field. We offer opportunity for rapid advancement to ambitious, hard-working young men willing to accept responsibility. Starting salary $110.00 per week if unexperienced, with higher wages for those with some experience. Send complete history data. Martin K. Eby Construction Co., Inc., 610 N. Main, P.O. Box 1679, Wichita 5, Kansas.

**Wanted: Graduate M.E. to supervise contractors** shop, mechanics, field operation of equipment, purchasing; young man, broad experience preferred. N.Y. State area. Resume and salary requirement to P-5322, Engineering News-Record.

**Civil Engineer, Experienced in Sewage Collection** and Treatment, preliminary planning for housing projects and/or Roads and Streets. Will consider business interest, profit sharing, or, state minimum salary. Write: C. C. Johe and Associates, P.O. Box 544, Merritt Island, Florida.

**Engineer, Ass't.—City of Zion, Illinois, experienced** or training in surveying, road construction & maintenance and drafting desired; salary $4732—$5238; apply City Clerk-Manager, City Hall, Zion, Illinois.

**Engineer-Gunite, wanted immediately, must** know estimating, take complete charge of all gunite operations. Executive position ultimately available. P-5355, Engineering News-Record.

**Seaway contractor requires Draftsman-De**signers, Computers, Field Engineers on form checkouts, Party Chiefs and Instrument Men. Work week to consist of six (6) days. Send resumes with desired salaries. Application not considered unless desired salary is indicated. All inquiries to be kept confidential. P-5083, Engineering News-Record.

**Highway and Bridge Engineers, Designers,** Draftsmen. Permanent positions. Well established and growing. (Location Southern Connecticut). Send resume of experience to: P-4969, Engineering News-Record.

**Engineering graduates with experience in** testing and control of concrete, asphalt and soils for permanent position in New England. Give full details of experience and education. State salary requirements. P-5295, Engineering News-Record.

**Construction Man Wanted. Old well-known** general construction and engineering firm operating in Central New York desires to negotiate mutually profitable agreement with a thoroughly qualified all-around construction man who is good at supervision, contracts, estimating, expediting etc. Must be around 35 years of age and a graduate civil engineer. P-5367, Engineering News-Record.

**Sales Engineer—Precast Concrete Products.** Sales to contractors, architects & engineers. New York City Area. Please include resume with first reply to, P-5382, Engineering News-Record.

**Inspectors: For Asphalt Paving on large** Turnpike Project in Eastern Connecticut. Permanent Position. Salary open. John J. Mozzochi and Associates, 265 Hebron Avenue, Glastonbury, Connecticut.

## POSITIONS VACANT

**City Engineer—Street Superintendent, Ar**cata, Calif., (pop 4720) Calif. Registration Required, Municipal experience preferred but not mandatory. Salary open. Attractive, challenging position in college town, modern schools, equable climate, progressive community. Apply City Engineer, City Hall, Arcata, Calif. List qualifications.

**Assistant City Engineer, Arcata, Calif., Grad**uate Civil Engineer, Apply City Engineer, City Hall, Arcata, Calif. List qualifications.

**Wanted At Once, by leading General Con**tractor, thoroughly qualified Estimator. Position permanent. Location southeast. Salary open. P-5390, Engineering News-Record.

**Wanted At Once project manager and gen**eral superintendents, by leading General Contractor, location southeast. Must be thoroughly qualified and experienced all types building construction. Permanent Position. Salary open. P-5387, Engineering News-Record.

**Wanted, experienced structural draftsman to** supervise the work of six draftsmen, handle job correspondence, subcontracting of drawings, etc.; write stating qualifications and compensation desired. P-5393, Engineering News-Record.

**Estimator experienced in all types of build**ing construction wanted by Eastern Mass. Contractor. Excellent opportunity for the right man now earning over $12,000. per year. Send complete resume of experience, education and other information to: P-5397, Engineering News-Record.

## POSITIONS WANTED

**Construction or Project Manager, capable** executive. 27 years experience from field superintendent to Foreign Resident Manager. All types multi-million dollar construction, foreign and domestic. Contract negotiations, estimating, purchasing, labor and public relations. Spanish, German, French Portuguese. Seeking a permanent assignment but would consider challenging term contract in Europe, Latin-America or USA. PW-5275, Engineering News-Record.

**Architectural Engineer, graduate, 10 years** exp. in various construction capacities, presently heading own Contracting firm. Background Greek education desires position (Eng. Administrative or sales) in Greece only. PW-5225, Engineering News-Record.

**Construction Superintendent or Project Man**ager thoroughly experienced on all types of projects. Will go anywhere, foreign or domestic. Available immediately. Best of references. PW-5180, Engineering News-Record.

**Resident Engineer with 25 years experience** on Power Plants, Bridges, Sewage and Water Treatment Plants, Industrial, Commercial and Monumental Buildings. Available immediately. PW-5181, Engineering News-Record.

**Looking for supervisor job, any distance. I** have 35 years experience in blasting in tunnels, sewers, roads, etc. I'm ready to work in July. I'm willing to work two ways: salary or by the ability to the progress; not last 6 months or more agreement. Write: A. B. Izzo, 827 Morris Park Ave., Bronx, or tel. T.T.A. 2-7000.

**Registered Professional Engineer Executive,** Extensive experience Construction, Maintenance, Design Management over $350,000. Industrial, Public Works, Structures, Utilities. Excellent references. PW-5265, Engineering News-Record.

**C.E. Age 54. 32 yrs. exper. Reg. P.E. Desire** work in small New England city. PW-5256, Engineering News-Record.

**Superintendent, Bldg. Const. 25 years experi**ence field supervision. Industrial, commercial, institutional, churches, etc. Similar field position desired. Can travel. PW-5332, Engineering News-Record.

**General Supt., Project Manager, Architect,** Engineer, Supt. Air Base Commercial Industrial & Plant Construction, Highways & Sewers. Available immediately, Domestic or Over-Seas. PW-5334, Engineering News-Record.

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## POSITIONS WANTED

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**Soils Engineer, Reg. P.E. 34; BSCE, MS soils,** single. Experience in structural and foundation design. Laboratory testing. Engaged on airfields, dams, buildings & variety substructural work. PW-5331, Engineering News-Record.

**Wanted job as Supt. or Project Manager. Have** 25 years experience in heavy Const. Heavy Grading and General Const. am available in the near future. Please state your desires and expectation in your reply. PW-5307, Engineering News-Record.

**General Manager, Chief Estimator, Project** Manager. Industrial, Commercial & heavy Construction from bid to completion. Estimating, Bidding and supervision, Graduate Engineer and licensed. 25 years background. Desire change. PW-5354, Engineering News-Record.

**B.C.E. 1951. Experience on highway and air**port construction. Seek position with general contractor or engineer. PW-5358, Engineering News-Record.

**Equip. Supt. Master Mech. 20 yrs. experi**ence in shop management and field administration with all type equipment and construction. PW-5384, Engineering News-Record.

**Civil Engineer, Registered, 29, now asst. to** head of Bridge Dept. in consult. firm, cost-conscious & alert, seeks interesting & responsible posn., pref. large East Coast city. Exp. in prestressed concr. as well as steel desn. PW-5371, Engineering News-Record.

**Construction Engineer—Experienced 25 years** Management, bidding, supervising, purchasing and negotiating for successful general contractors on building and heavy construction. Available soon. Western location preferred. PW-5370, Engineering News-Record.

**Experienced Architects-Engineers Field Su**perintendent, available immediately. References. PW-5388, Engineering News-Record.

**Construction Engineer, B.S.C.E. P.C. License,** 26 single, 4 years estimator and project manager in responsible position, several languages, desires similar work. Will consider overseas assignment. PW-5400, Engineering News-Record.

**Construction Engineer—Have seven years** widely varied experience including some estimating and management. Seeking permanent arrangement with small or medium size contractor, west of Mississippi. PW-5399, Engineering News-Record.

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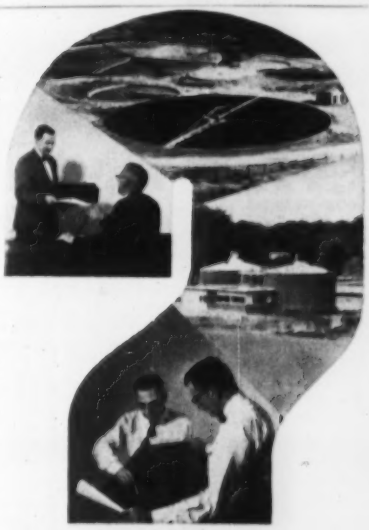

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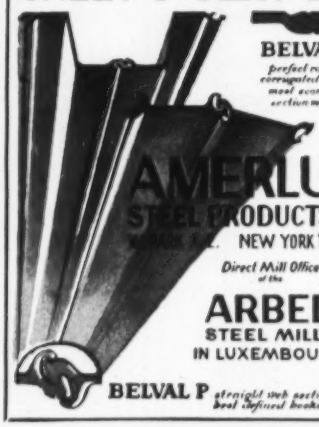
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(Continued from page 162)

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Aetna Casualty & Surety Co. ..... 102
Allison Engine Div., G. M. C. ..... 107
American Bitumuls & Asphalt Co. ..... 101
American Manganese Steel Div. ..... 108
American Marietta ..... 128
Automotive & Aircraft Div. ..... 115
Austin Western Co. ..... 119

Barber-Greene Co. ..... 120
Bethlehem Steel Co. ..... 1, 123
Bituminous Coal Institute ..... 111
Blaw Knox Co. ..... 97
Blue Ridge Glass Corp. ..... 9
Bristol Steel Corp. ..... 81

Case Foundation Co. ..... 104
Cast Iron Pipe Research Assoc. ..... 6, 7
Caterpiller Tractor Co. ..... 12, 13
Celotex Corp., The ..... 103
Chicago Bridge & Iron Co. ..... 2nd Cover
Chicago Pneumatic Tool Co. ..... 32
Clipper Mfg. Co. ..... 137
Clow & Sons, James B. ..... 149
Concrete Reinforcing Steel Institute ..... 117

Dennison Engineering ..... 35
Dietz, R. C. ..... 140
Du Pont de Nemours & Co., Inc. ..... 93
Dur-O-Wal ..... 122

Eastern Constructors ..... 116
Economy Forms Corp. ..... 48

Filotecnica Salmeiraghi, Inc. ..... 129
Flexible Road Joint Machine Co. ..... 54, 55
Flintkote Co., The ..... 70
Foster Co., L. B. ..... 2

General Electric Co. (Electronics Dept.) 98
Gorman Rupp Co. ..... 77
Granhic Svstems ..... 74
Griffin Wellpoint Corp. ..... 114
Gulf Oil Corp. ..... 83-86

Hamilton Mfg. Co. ..... 10
Harbor Plywood Corp. ..... 4, 5
Harnischfeger Corp. ..... 20
Hartford Fire Ins. Co. ..... 127
Hendrick Mfg. Co. ..... 100
Hough Co., Frank G. ..... 3rd Cover

Ingalls Iron Works Co. ..... 131
Ingersoll Rand Co. ..... 146
Iowa Mfg. Co. ..... 50

Johns-Manville Corp. ..... 38

Kinnear Mfg. Co. ..... 114

The Lamson & Sessions Co. ..... 31
Larsen Prod. Corp. ..... 100
Leschen Wire Rope Div. (H. K. Porter Co.) 51
Le Tourneau-Westinghouse Co. ..... 60-65
Lincoln Electric Corp. ..... 88
Line-Rollway Corp. ..... 72
Lock Joint Pipe Co. ..... 18
Louisville Cement Co. ..... 138

Mac Whyte Co. ..... 42
McGraw-Hill Book Co. ..... 33
McKiernan-Terry Corp. ..... 122
McKinney Drilling Co. ..... 122
Moretrench Corp. ..... 74
Morse-Starrett Prod. Co. ..... 104
Mueller Co. ..... 142

National Clay Pipe Mfg. Inc. ..... 91
National Steel Corp. (Stran Steel Div.) .. 41
National Supply Co., Ind. Prod. Div. ..... 80

Olin Mathieson Chem. Corp. ..... 49
Owen Bucket Co. ..... 14

Peerless Pump Div. of Food Machy. Corp. .. 133
Pittsburgh-Des Moines Steel Co. ..... 112
Presstite Keystone Prod. Engr. Co. ..... 44

Reliance Steel Prod. Co. ..... 75
Remington Arms Co. Inc. ..... 96
Reynolds Metal Co. Inc. ..... 45
Rodney Hunt Machine Co. ..... 151
Russell, Burdsall & Ward Bolt & Nut Co. 71
Rust-Oleum Corp. ..... 15

Schramm, Inc. ..... 78
Shawnee Mfg. Co., Inc. ..... 118
Signode Steel ..... 95
Sika Chemical Corp. ..... 105
Spencer, White & Prentis, Inc. ..... 100

Sprague & Henwood, Inc. ..... 76
Stang Corp., John W. ..... 66
Stanpat Co. ..... 82
Stoody Co. ..... 125
Stow Mfg. Co. ..... 34

Timken Roller Bearing Co. ..... 4th Cover
Torrington Co. ..... 79
Tractomotive Corp. ..... 69
Truscon Laboratories ..... 8

Underpinning & Foundation Co. ..... 109
Unit Crane & Shovel Corp. ..... 145
U. S. Rubber Co. ..... 22
Universal Sewer Pipe Corp. ..... 3
Utility Supply ..... 109

Vermeer Mfg. Co. ..... 104
Vulcan Materials ..... 11

Weil Pump Co. ..... 92
Westinghouse Electric Corp. ..... 36, 37
White Motor Co. ..... 16, 17
Williams Equipment & Supply Co. ..... 48

Yeomans Brothers Co. ..... 94

**Professional Services ..... 163-166**


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Employment Opportunities ..... 156-159
Educational ..... 160
Notices
Proposal ..... 154-156
Equipment
(Used or Surplus New)
For Rent, Sales Wanted .. 160-162, 166



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## Notable Anniversary

CEREMONIES will be held in Switzerland, June 18, commemorating the 75th anniversary of the opening of the St. Gotthard Tunnel through the Alps. Some 9.3 miles long, it is one of the great pioneer tunnels of the world. Built for about 30 trains a day, it now carries 170, thanks to modern centralized signal control.

Last year, also, more than 100,000 motor cars and trucks were conveyed through the tunnel, a type of load which could hardly have been foreseen. And as a sign of the times the next tunnel to be driven through the Alps, that under Mont Blanc, will be entirely for motor vehicles. Better explosives, rock drills, mucking equipment and ventilation will also aid the modern tunnel driver, but he should nevertheless doff his cap each morning to the men who made St. Gotthard 75 years ago. They showed the way, and deserve all honors.

## New Conquest for Computers

RECENT DEMONSTRATION of the ability of electronic digital computers to handle pipeline network analyses could have the same significance to the waterworks industry as did computer solution of earthwork cuts and fills to the highway field.

Success with the time-consuming and oft-repeated earthwork quantity problem provided the early impetus to widespread adoption of digital computers by highway engineers. And pipeline network analysis is a strikingly similar problem, both in engineering drudgery characteristics and in magnitude of application. Therefore, it seems quite possible that hydraulic engineers will adopt the pipeline calculation as a stepping stone to the entire range of feasible applications in this field, just as was done in highway engineering.

The computer situations in the two fields are not entirely analogous, however, since large waterwork organizations capable of owning the apparatus are not usual. One of the demonstrations of electronic pipeline analysis was provided by a private data reduction and processing specialist firm, which charges engineer customers a unit price per number of loops per number of iterations (ENR May 23, p. 66). A second demonstration, described in the May JOURNAL of the American Water Works Association, involved collaboration between a consulting engineer and a computer manufacturer's data-processing center to serve the city of Palo Alto, Calif.

Both instances are examples of how electronic computers can be utilized by smaller agencies or engineering firms without the great expense of acquiring the machines. Both examples also provided convincing evidence of the magnitude of savings.

The data-processing firm charges 42 cents per loop per iteration, or about $25 for a ten loop system requiring six iterations to converge, based on the Hardy Cross method of analysis. The work for Palo Alto was done for a computing cost of $500 for eight different solutions of a 38 loop network requiring an average of 13 iterations each.

An interesting question with respect to solution of pipeline nets is how the digital computers compare in accuracy, speed and economy with the McIlroy fluid network analyzer's performance. The analyzer is an electrical analog computer designed specifically for pipeline network analysis; but digital computers are general-purpose machines that can handle almost any engineering problem susceptible of mathematical expression. The broadest significance therefore rests in the reaction of the waterworks industry to electronic digital computers for many other feasible engineering applications besides pipeline analysis.

## Reproducing History

ARRIVAL OF THE MAYFLOWER II on its voyage from Plymouth, England to Plymouth, Massachusetts serves to emphasize the fact that historical shrine building is on the increase in the United States. For after she has shown herself in several eastern ports, the 180 ton vessel will find a permanent berth at Pilgrim Village now under construction two miles south of famous Plymouth Rock. Here will be reproduced, in strict authenticity, the homes, grist mill, trading post and meeting house which graced a site in this same area three hundred years ago.

No better way to teach history could be contrived. Starting some 30 years ago when John D. Rockefeller, Jr. began the transformation of Colonial Williamsburg in Virginia, the idea has grown until more and more such historical shrines are bringing the past alive. In addition to Pilgrim Village, there is the reproduction of 350-year old Jamestown, Va., which will attract a million visitors this summer. And there is the log cabin village at Sturbridge, Mass., the marine museum and seaport at New London, Conn., and numerous other smaller shrines under way or planned across the country.

One can also discern a tendency to mark historic spots by useful memorials, instead of, or in addition to, a statute or a bronze plaque. Only last week, an unusually interesting proposal of this kind was made in St. Louis where plans have been under way to erect a stainless steel arch to symbolize the "Gateway to the West." Instead of the arch, A. Carl Weber, Laclede Steel Co. engineer, urged that the arch idea be abandoned in favor of a municipal stadium and underground parking facilities.

Memorials can be useful, and it makes sense that they should be. It can be a utilitarian usefulness or an educational one, but in either case it commemorates an event or a site in a manner that makes history live. It can only be hoped that the trend toward useful shrine building will continue unabated.

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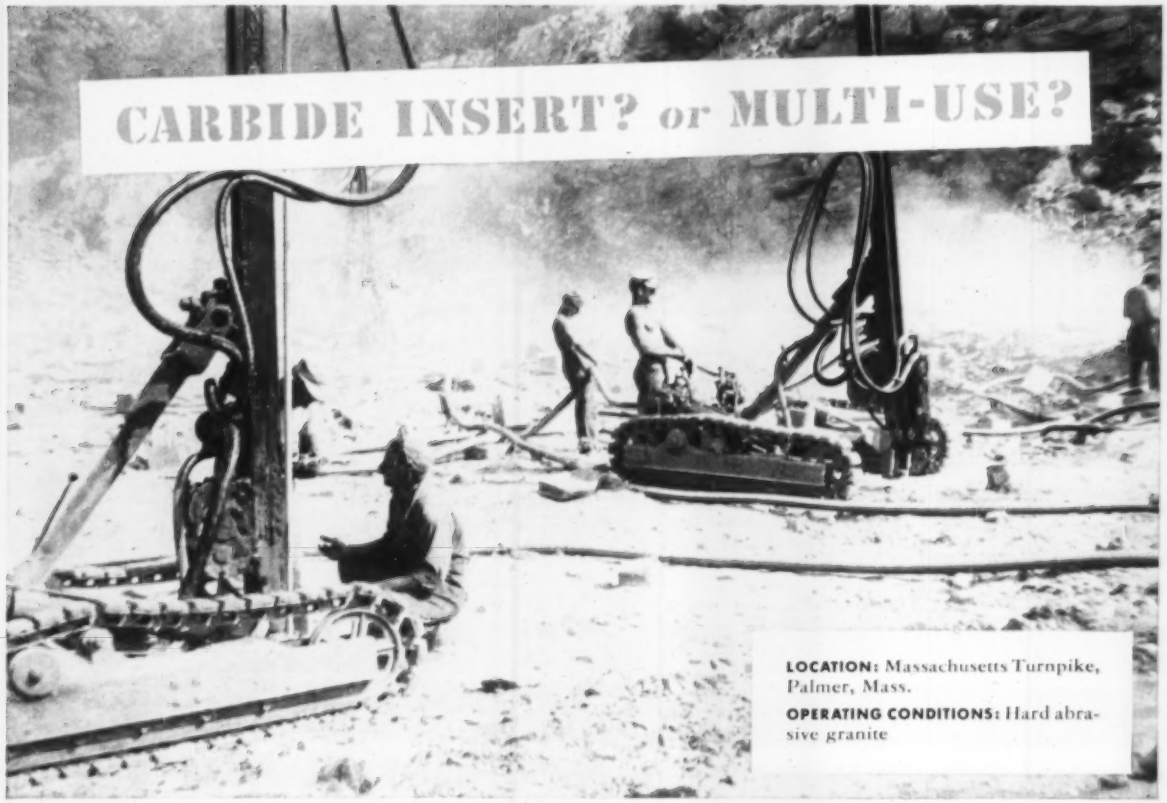
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